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ABSTRACT

This handbook is designed to assist teacher educators, curriculum specialists, and others involved in writing performance-based vocational teacher education modules. Module writing instructions are supplemented by fifty-eight sample illustrations. In the first of two sections the format for the components of the module is outlined. Then guidelines are given for writing the (1) title page, (2) introduction, (3) module description, which includes the objectives, prerequisites, resources, and performance elements, (4) learning experience sections, which involve the overview, activities, and feedback, (5) final learning experience section, which includes the terminal objectives, activities description, and feedback/teacher performance assessment form, and (6) instructions for use of the module. In the final section module development procedures and two checklists for ensuring module quality are provided. (A two-volume final report of the Performance-Based Professional Education Curricula project is available as two separate documents--see note.) (CSS)

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ED160776

MODULE DEVELOPMENT HANDBOOK

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1977

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FOREWORD

The module development technology described in this document has evolved as a result of experience gained by program staff in the development of The Center's 100 Performance-Based Teacher Education Modules under sponsorship of the National Institute of Education. Development of the 100 PBTE modules involved a sustained series of development, field testing, and revision phases with participation of 20 vocational teacher training institutions, over 250 teacher educators, and over 2,500 teachers in training. Module format and quality standards of the final published version of the modules have been a result of these efforts. It has been the intent of the writers to reflect in this handbook the format and quality standards of the published version of The Center's PBTE modules.

The handbook is intended for use in developing instructional modules for additional professional competencies needed by teachers in specific educational settings but not included in The Center's 100 PBTE modules. Further use of the handbook is intended in the development of individualized performance-based modules for other educational professionals and para professionals. Module format and procedures presented will also be helpful in the development of technical competencies needed by teachers and others.

Special recognition for their roles in the development of this handbook goes to members of The Center's Professional Development in Vocational Education Program staff: Karen Quinn, Program Associate, for writing the major portion of the final version of the handbook; James B. Hamilton, Program Director; Robert E. Norton, Associate Program Director; Glen E. Fardig, Specialist; and Lois G. Harrington, Program Associate, for their assistance in planning and reviewing the final version of the handbook and for their contributions in development of the module format and processes described herein. Acknowledgement is due also to Anna M. Gorman, James B. Hamilton, Lois G. Harrington, and Curtis R. Finch for their contributions to preliminary working versions of the handbook.

The Center is also grateful to the National Institute of Education (NIE) for sponsorship of The Center's PBTE curricula development effort (of which this handbook was one product) from 1972 through its completion. Appreciation is due also to the former Center staff members and the site coordinators, teacher educators, and teachers from the many developmental and test sites whose cooperation made The Center's PBTE curricula development effort and this handbook possible.

Robert E. Taylor
Executive Director
The Center for Vocational Education

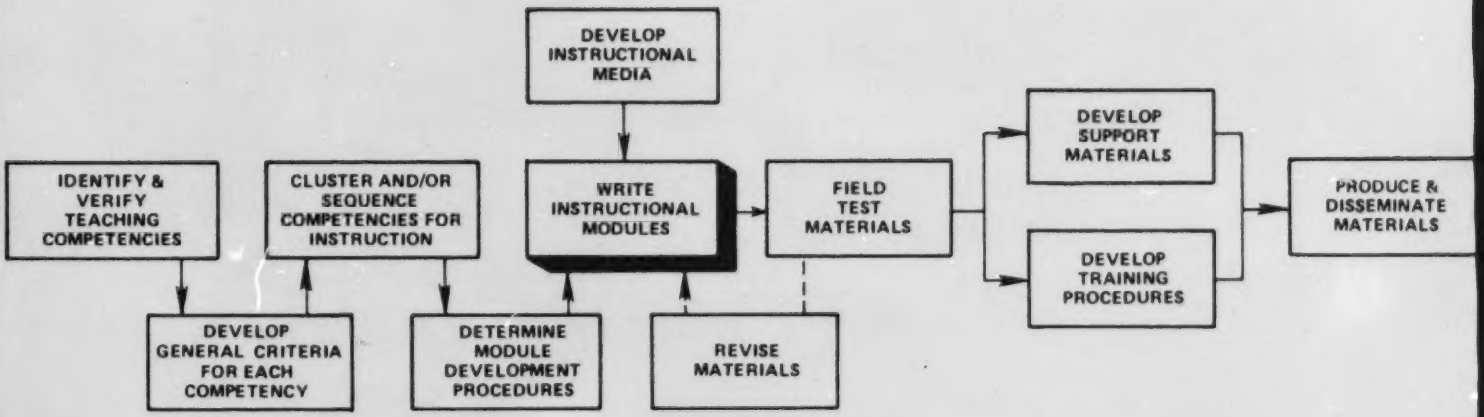

Figure 1. PBTE Materials Development Process

OVERVIEW OF HANDBOOK

This handbook has been written to assist persons involved in writing performance-based vocational teacher education modules. You may be a teacher educator, curriculum specialist, staff development director, or some other person with responsibility for developing performance-based instructional materials for use with pre- and inservice vocational teachers. You may be working alone on this task, or as a member of a writing team. The subject matter of the proposed module(s) may be specialized and technical, or professional and pedagogical. You may or may not have experience with using The Center's PBTE modules.

Regardless of the specific circumstances, this handbook has been written based on certain assumptions concerning your situation and needs. First, it is assumed that you are, in fact, involved in a PBTE program, that you have some knowledge of PBTE concepts and materials, and that a decision has been made to use a modularized approach (totally or in part). Thus, no attempt has been made to explain PBTE or justify the use of modularized materials.

Second, it is assumed that (1) the competencies teachers are to achieve, and the general criteria for measuring their achievement, have already been identified for your PBTE program; (2) a need for a module or modules covering one or more of these competencies has been identified; and (3) the competencies to be covered have been clustered under appropriate module topics. Thus, we have not included a description of the competency identification and clustering process.

The third assumption is that the module development procedures (the writing, review, editing, typing, and printing responsibilities and process) have been worked out, and you are ready to begin writing a PBTE module (see Figure 1). Information on PBTE concepts, the research and development process leading to publication of the 100 PBTE modules, and the use of the modules in teacher education programs is contained in four related documents available from the publisher, American Association for Vocational Instructional Materials/Engineering Center/University of Georgia/Athens, Georgia 30602:

> *Performance-Based Teacher Education: The State of the Art, General Education and Vocational Education*
>
> *Student Guide to Using Performance-Based Teacher Education Materials*
>
> *Resource Person Guide to Using Performance-Based Teacher Education Materials*
>
> *Guide to the Implementation of Performance-Based Teacher Education*

Given these assumptions, this handbook has been designed to provide you with specific guidelines for developing the components of a PBTE module. Because there is no one "typical" CVE module illustrating all the points made, a complete module has not been appended as an example. Instead, samples from a variety of modules are included to illustrate key points. It is also beneficial to have one or more complete modules for reference, however. Modules C-16, C-8, and D-2, available from AAVIM, are useful models to have on hand when developing a module.

COMPONENTS OF A MODULE

A standard module format has been developed for use in writing The Center's PBTE modules. Following this format, or an adaptation of it suited to your needs, will free you from many routine decisions and allow you to focus on the module content itself. The format as presented here has been developed over a period of time and after much field testing, and is known to function well. Thus, any modification should be carefully considered.

Each CVE module contains the following components, in this order:

- Title page
- Introduction
- "About This Module" page which lists--
  - objectives
  - prerequisites, if any
  - resources needed
  - numbers of the performance elements (competencies) covered
- Series of enabling learning experiences
- Final experience
- "About Using The Center's PBTE Modules" page which includes--
  - organization of modules
  - procedures for using modules
  - module terminology
  - levels of performance for final assessment

Title Page

The *title page* should identify (1) the title of the module, (2) the module category and number, (3) the developer, and (4) the publication date or date produced.

The title page should make the module easy to identify, and indicate in a few words what overall competency the module is designed to help the teacher achieve. (See Sample 1.)

SAMPLE 1

MODULE

C-1

Direct Field Trips

MODULE C-1 OF CATEGORY C—INSTRUCTIONAL EXECUTION
PROFESSIONAL TEACHER EDUCATION MODULE SERIES

The Center for Vocational Education
The Ohio State University

KEY PROGRAM STAFF:

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1977

ISBN 0-914452-57-6

Published and distributed by the **American Association for Vocational Instructional Materials (AAVIM)**, 120 Engineering Center, University of Georgia, Athens, Georgia 30602, (404) 542-2586.

Following are guidelines for writing a title page.

- The module title should clearly state the overall competency the module is designed to cover; that is, it should describe what the teacher should be able to do upon successful completion of the module (e.g., *Direct Field Trips*).

- The title should be stated in performance terms, using an action verb (e.g., *Direct Field Trips*, not *Recognize the Educational Value of Field Trips*, or *The Use of Field Trips*).

- The title should be brief, conveying the intent of the module as concisely as possible (e.g., do not say *Plan, Prepare for, Conduct, and Evaluate Individual and Group Field Trips*, even though these skills are included in the overall competency covered by the module).

- The module title and the performance portion of the terminal objective of the module should match exactly (e.g., the terminal objective of the module *Direct Field Trips* is "While working in an actual school situation, direct field trips").

- The title page should give identifying information which locates the modules within the total series of modules available (e.g., *Direct Field Trips* is identified as C-1, the first module in Category C: Instructional Execution).

Introduction

The *introduction* to a module should give the teacher an overview of the purpose and content of the module to (1) provide a frame of reference for completing the module, and (2) help the teacher decide whether he/she needs to complete the module. It should motivate the teacher to undertake the learning activities of the module. (See Sample 2.)

SAMPLE 2

INTRODUCTION

As a vocational teacher, you are responsible for helping your students achieve entry-level competency in the occupation for which they are preparing. Occupational analyses can reveal what these entry-level competencies are, and courses of study or curriculum guides can indicate what students should be able to do when they leave the program or complete a particular course. However, as you plan the units and lessons which make up the course you are teaching, you will need to be able to translate this information into precise statements describing the knowledge, skills, and attitudes you want your students to achieve—in other words, you will need to be able to write student performance objectives.

In some cases, student performance objectives will already have been written for the course you are teaching. In that case, you have a responsibility as you plan your units and individual lessons to consider the needs, interests, and abilities of your particular students, and to add to, delete from, or revise those student performance objectives to reflect what you know about your students.

This module is designed to give you skill in writing student performance objectives for your vocational program which spell out for you, your students, and prospective employers exactly what is expected of students in that program. In addition, it will give you experience in sequencing student performance objectives to ease student learning.

Following are guidelines for writing the introduction.

- The introduction should include a one or two sentence statement of the skill the module is designed to help the teacher achieve (e.g., "skill in writing student performance objectives for your vocational program...").
- Use a standard phrase such as, "This module is designed to..." to introduce the skill statement.
- Explain why the competency is important to vocational teachers (e.g., the introduction illustrated in Sample 2

states that teachers, students, and employers need to know what students should be able to do when they complete the program, and that student performance objectives spell these expectations out).

- Indicate the relationship of this module to other modules and/or how it fits into vocational teaching in general (e.g., in Sample 2, the development of student performance objectives is related to occupational analysis, course of study development, and unit and lesson planning).

- If the module title contains a term which may be unfamiliar to the teacher, or which has more than one acceptable definition, define the term or indicate how you will be using it in the module. Further definition of terms specific to the competency covered by the module should occur in the information sheet(s) within the module. (Standard terminology common to all modules should be defined in a separate section--see p. 65; do not use the introduction as a glossary.)

- Keep the introduction relatively short (around 300 words is probably ideal). Don't try to tell the teacher in the introduction everything he/she needs to know about the skill; save detailed instructions and information for the information sheet(s).

- Use the second person form (e.g., "As a vocational teacher, you are responsible for...") to personalize what you are saying and arouse the teacher's interest in the subject.

About This Module

Any module you write should provide the user with (1) general directions for how to take a module, and (2) specific information about this module which the user needs to know before beginning the learning activities.

The Center's PBTE modules provide this information in two sections: The *About Using The Center's PBTE Modules* section, which gives general directions for all modules (see p. 65 for guidelines for writing this section), and the *About This Module* section, which gives information unique to each module. You may wish to design your own format for presenting this information, keeping in mind the suggestions provided in these guidelines.

The *About This Module* page should tell the teacher at a glance--

- terminal and enabling *objectives* of the module
- *prerequisites*, if any, for completing the module
- *resources* needed to complete the module
- *performance element number(s)* covered by the module (if applicable)

Sample 3 gives an example of the About This Module page included in The Center's modules.

SAMPLE 3

ABOUT THIS MODULE

Objectives

Terminal Objective: In an actual school situation, introduce a lesson. Your performance will be assessed by your resource person, using the Teacher Performance Assessment Form, p. 43 (*Learning Experience IV*).

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the elements of an effective lesson introduction (*Learning Experience I*).
2. Given an actual teacher presenting a lesson introduction, or two case scripts of teachers introducing a lesson, rate the performance of the teacher(s) (*Learning Experience II*).
3. In a simulated classroom or laboratory situation, introduce a lesson (*Learning Experience III*).

Prerequisites

To complete this module, you must have competency in developing a lesson plan. If you do not already have this competency, meet with your resource person to determine what method you will use to gain this skill. One option is to complete the information and practice activities in the following module:

- *Develop a Lesson Plan*, Module B-4

Resources

A list of the outside resources which supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions, or in assessing your progress at any time.

Learning Experience I

No outside resources.

Learning Experience II

Required

A teacher experienced in presenting lesson introductions whose performance you can observe and critique. If a teacher is unavailable, an alternate activity has been provided.

A resource person to evaluate your competency in critiquing the performance of an actual teacher in introducing a lesson.

Optional

A locally-produced videotape of a teacher introducing a lesson which you can view for the purpose of critiquing that teacher's performance.

Videotape equipment for viewing a videotaped lesson introduction.

Learning Experience III

Required

2-5 peers to role-play students to whom you are introducing a lesson and to critique your performance in introducing a lesson. If peers are unavailable, you may present your lesson introduction to your *resource person*.

Optional

A resource person to evaluate your competency in developing a lesson plan.

Videotape equipment for taping, viewing, and self-evaluating your presentation.

Learning Experience IV

Required

An actual school situation in which you can introduce a lesson.

A resource person to assess your competency in introducing a lesson.

This module covers performance element number 100 from Calvin J. Cotrell et al., *Model Curricula for Vocational and Technical Education: Report No. V* (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1972). The 384 elements in this document form the research base for all The Center's PBTE module development.

For information about the general organization of each module, general procedures for their use, and terminology which is common to all 100 modules, see About Using The Center's PBTE Modules on the inside back cover.

Following are guidelines for writing the About This Module page.

- This page should be written last, after you have written the learning experiences and (1) worked out the content and wording of the objectives for each learning experience, (2) identified the outside resources needed to complete the activities in each learning experience, and (3) made final decisions about the need for prerequisites.

- Writing this page, then, becomes a simple matter of copying the needed information from the module content and presenting it in a standard format as illustrated in Sample 3.

Objectives

- Copy the wording of the objectives exactly as they are stated at the beginning of each learning experience. (See pp. 23-25 and p. 58 for guidelines for writing the terminal and enabling objectives.)

- List the *terminal objective* first, then the *enabling objectives*.

  Identify, in parentheses following each objective, the learning experience to which the objective refers.

- In listing the terminal objective, include the means by which its achievement will be assessed ("...by your resource person, using the Teacher Performance Assessment Form (TPAF)...").

Prerequisites

- Keep prerequisites to a minimum.

- List only those competencies that are essential to the successful completion of a module. For example, the module *Introduce a Lesson* requires the teacher to plan a complete lesson, giving special attention to the introduction of the lesson. Thus, the teacher must have lesson planning skills to successfully complete the module, and this competency is listed as a prerequisite. (See Sample 3.)

- As illustrated in Sample 4, other skills related to the competency at issue should be referred to in the text of an information sheet, with footnotes citing the module(s) the teacher can refer to in order to gain the skill(s) if necessary.

SAMPLE 4

Obviously, the introduction grows out of your lesson plan for the day, so no one formula for introducing a lesson can be given. If this lesson is the **beginning** of a unit on "Getting a Job," for example, you might not need to spend a great deal of time relating this lesson to past classroom activities.[1] However, you would want to provide a clear transition from the previous unit. On the other hand, if the lesson overlaps with the previous day's activities, or if students have been working eagerly on a particular project for several days, the motivational devices might be unnecessary, but the "look backward" and "look ahead" might need to be stressed.

The classroom **situation,** in other words, has an impact on how you will introduce each lesson. The introduction, like the lesson plan of which it is an integral part, should reflect your understanding of the needs, interests, and abilities of your students, your grasp of who and where they are.[2] The introduction that worked beautifully in one class may fail to motivate another class. One class may respond well to strictly verbal explanations; another may need to see a chart, picture, or real object to fully understand a point you are trying to make.

It is usually advisable to involve students in the introduction to the lesson. For example, you could ask a student to share with the class an experience related to the lesson objective. However, in some situations this may be unnecessary. Consider the following example. In introducing a lesson, you tell your students they will be working in buzz groups on possible solutions to an automotive design problem. Then, you state that the objective of the exercise is for each group to evaluate the alternatives, present their solution to the class, and defend it. In this case, beyond asking if there are any questions, spending time involving students in your introduction to the lesson may be unnecessary. Of course, if there are questions or confused looks, then you and your

---

1 To gain skill in developing a unit of instruction, you may wish to refer to Module B–3, *Develop a Unit of Instruction.*

2 To gain skill in determining the needs and interests of your students, you may wish to refer to Module B–1, *Determine Needs and Interests of Students.*

- List prerequisite competencies as competencies, not specific modules (e.g., "To complete this module, you must have competency in developing a lesson plan"). Then, indicate the options the teacher has for gaining the necessary skill(s). There are several ways in which a person may gain a skill, one of which may be to complete all or part of a module covering the skill.

- If there are no prerequisites, eliminate this heading from the *About This Module* page and move directly to the *Resources* listing.

Resources

- The Resources section should begin with a set of brief directions for obtaining the necessary resources. (See Sample 3.)

- The Resources section should list all the items the teacher will need to complete the learning experiences of the module; e.g.,

  - outside references
  - audiovisual materials

- equipment
- other materials
- persons
- situations

- List the resources by learning experience, *required* resources first, then *optional* resources, in order as they arise in the learning experience.

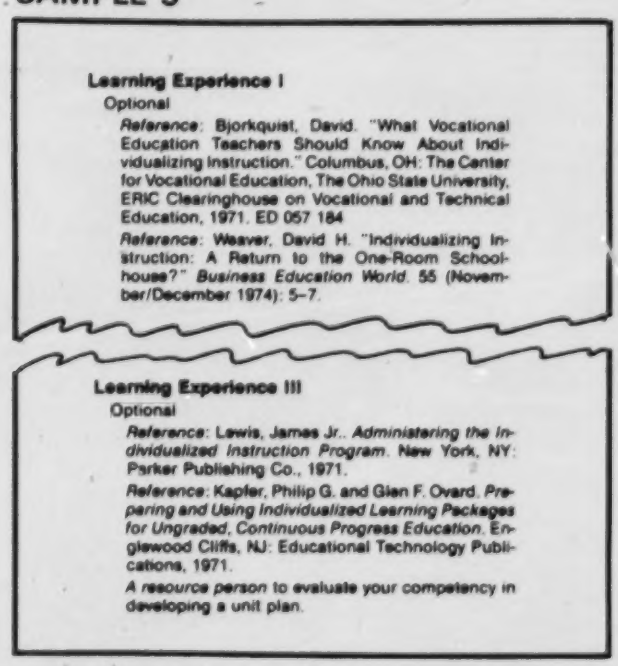
- If there are no outside resources for a learning experience, indicate this to the teacher.

- Indicate clearly what each resource will be used for (e.g., "A resource person to evaluate your competency in developing a unit plan").

- State the resources needed as directions to the person completing the module, not to the resource person.

- In listing specific published references, give the full citation, using a standard bibliographic form for books, articles, etc. As shown in Sample 5, whatever form you decide to use, use it consistently throughout the module(s) you write.

SAMPLE 5



Learning Experience I

Optional

Reference: Bjorkquist, David. "What Vocational Education Teachers Should Know About Individualizing Instruction." Columbus, OH: The Center for Vocational Education, The Ohio State University, ERIC Clearinghouse on Vocational and Technical Education, 1971. ED 057 184

Reference: Weaver, David H. "Individualizing Instruction: A Return to the One-Room Schoolhouse?" *Business Education World*. 55 (November/December 1974): 5–7.

Learning Experience III

Optional

Reference: Lewis, James Jr.. *Administering the Individualized Instruction Program*. New York, NY: Parker Publishing Co., 1971.

Reference: Kapfer, Philip G. and Glen F. Ovard. *Preparing and Using Individualized Learning Packages for Ungraded, Continuous Progress Education*. Englewood Cliffs, NJ: Educational Technology Publications, 1971.

A resource person to evaluate your competency in developing a unit plan.

- If there is a certain type of material you wish the teacher to obtain, read, or review, but you can't specify a particular published work or definite item, simply list the type

of material, with examples, being as specific as you can, as illustrated in Samples 6 and 7 (see items which begin with the word "Resources").

SAMPLE 6

Learning Experience II

Optional

Reference: Mager, Robert F. *Preparing Instructional Objectives.* Belmont, CA: Fearon Publishers, 1962.

A resource person and/or peers with whom you can meet to analyze additional student performance objectives.

Resources (e.g., curriculum guides, courses of study, textbooks, etc.) in your occupational specialty from which you can obtain student performance objectives to analyze.

SAMPLE 7

Learning Experience II

Required

Resources (e.g., individualized learning materials, individual learners, teachers or schools engaged in individualized instruction) to enable you to carry out a personalized learning experience.

A resource person and/or peers to react to your written report on individualized instruction.

- When listing a piece of media such as a filmstrip or videotape, also list the equipment the teacher will need in order to use this resource. (See Sample 8.)

- When listing persons needed to complete a learning activity, indicate (1) who is needed, and (2) how many are needed, if a specific number of persons is called for. (See Samples 9 and 10.)

- When peers are to critique the teacher's performance as well as to role-play students, both these functions should be specified (e.g., "2-5 peers to role-play students...and to critique your performance...").

- When a learning experience requires the use of peers (e.g., to role-play), an *alternate* activity is always provided for the individual who does not have access to peers (see p. 39 for a definition of "alternate activity"). The alternate activity may involve working with the resource person (see Sample 9), or responding in writing to case study problems. The resource listing for that learning experience should list the peers as required resources, but should also indicate that obtaining the help of these peers may not be necessary, depending on which alternative the teacher chooses (see Sample 10).

SAMPLE 8

Optional

A locally-produced videotape of a teacher introducing a lesson which you can view for the purpose of critiquing that teacher's performance.

Videotape equipment for viewing a videotaped lesson introduction.

SAMPLE 9

Learning Experience III

Required

2–5 peers to role-play students to whom you are introducing a lesson and to critique your performance in introducing a lesson. If peers are unavailable, you may present your lesson introduction to your *resource person*.

Optional

A resource person to evaluate your competency in developing a lesson plan.

Videotape equipment for taping, viewing, and self-evaluating your presentation.

SAMPLE 10

Learning Experience III

Required

3–5 peers to role-play students participating in a group field trip, and to critique your performance in directing the trip. If peers are unavailable, an alternate activity has been provided.

- When listing the resources for the *final experience*, list only the <u>situation</u> and the <u>resource person</u>, not the various materials, audiovisuals, etc., the teacher may or may not need during his/her actual performance. At this stage the teacher is expected to be able to determine for himself/herself what resources are needed. (See Sample 11.)

SAMPLE 11

Learning Experience IV

Required

An actual school situation in which you can introduce a lesson.

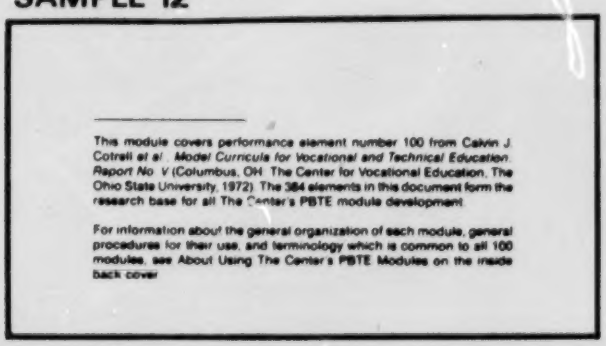
A resource person to assess your competency in introducing a lesson.

Performance Element Numbers

- The About This Module page should indicate the classification or listed number of the competency or competencies (from your master list of competencies) being covered by the module, and briefly state any other relevant information concerning the research base underlying these competencies. It is assumed here that you are working from a competency list that has been previously identified.

- If you have separated the general and specific directions for taking a module, direct the teacher at this point to the section of the module which explains general procedures for module use. (See Sample 12.)

SAMPLE 12



This module covers performance element number 100 from Calvin J. Cotrell *et al. Model Curricula for Vocational and Technical Education. Report No. V* (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1972). The 384 elements in this document form the research base for all The Center's PBTE module development.

For information about the general organization of each module, general procedures for their use, and terminology which is common to all 100 modules, see About Using The Center's PBTE Modules on the inside back cover.

Learning Experiences

The learning experiences are, of course, the heart of any PBTE module. They provide the teacher with a planned sequence of learning activities designed to lead him/her to achievement of the terminal objective--that is, designed to enable the teacher to perform, in an actual school situation, the overall competency covered by the module.

There are certain components which every module should include within its series of learning experiences if the teacher is to reach this goal:

background knowledge concerning the competency

opportunity to practice or apply the competency

demonstration of the competency in an actual school situtation

The CVE modules follow the instructional sequence displayed in Figure 2 in providing these three components.

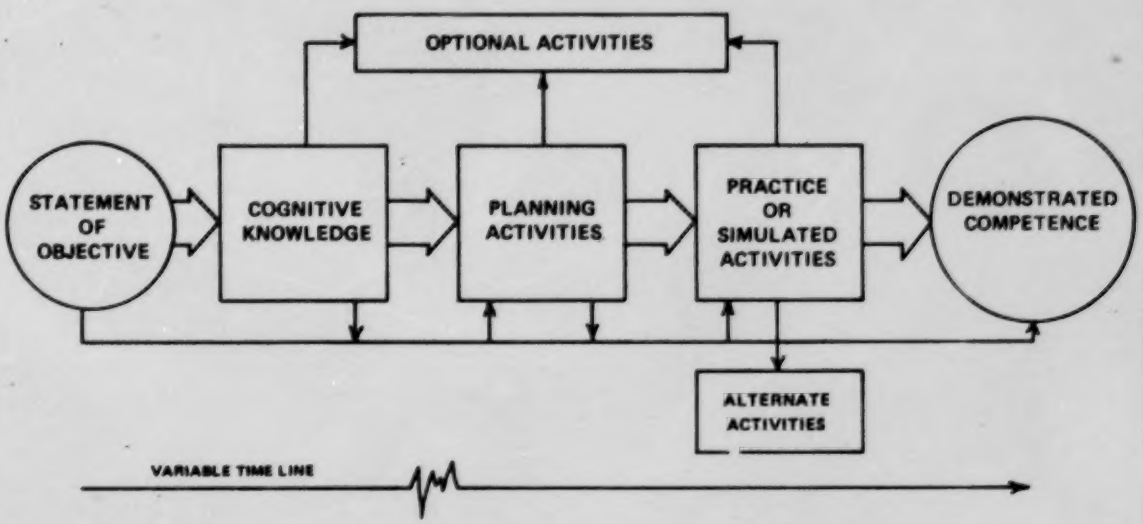


Figure 2. Typical Instructional Sequence for CVE Modules

A more detailed version of the same sequence is displayed in Figure 3, which illustrates a common pattern for the structure of the learning experiences in the CVE modules.

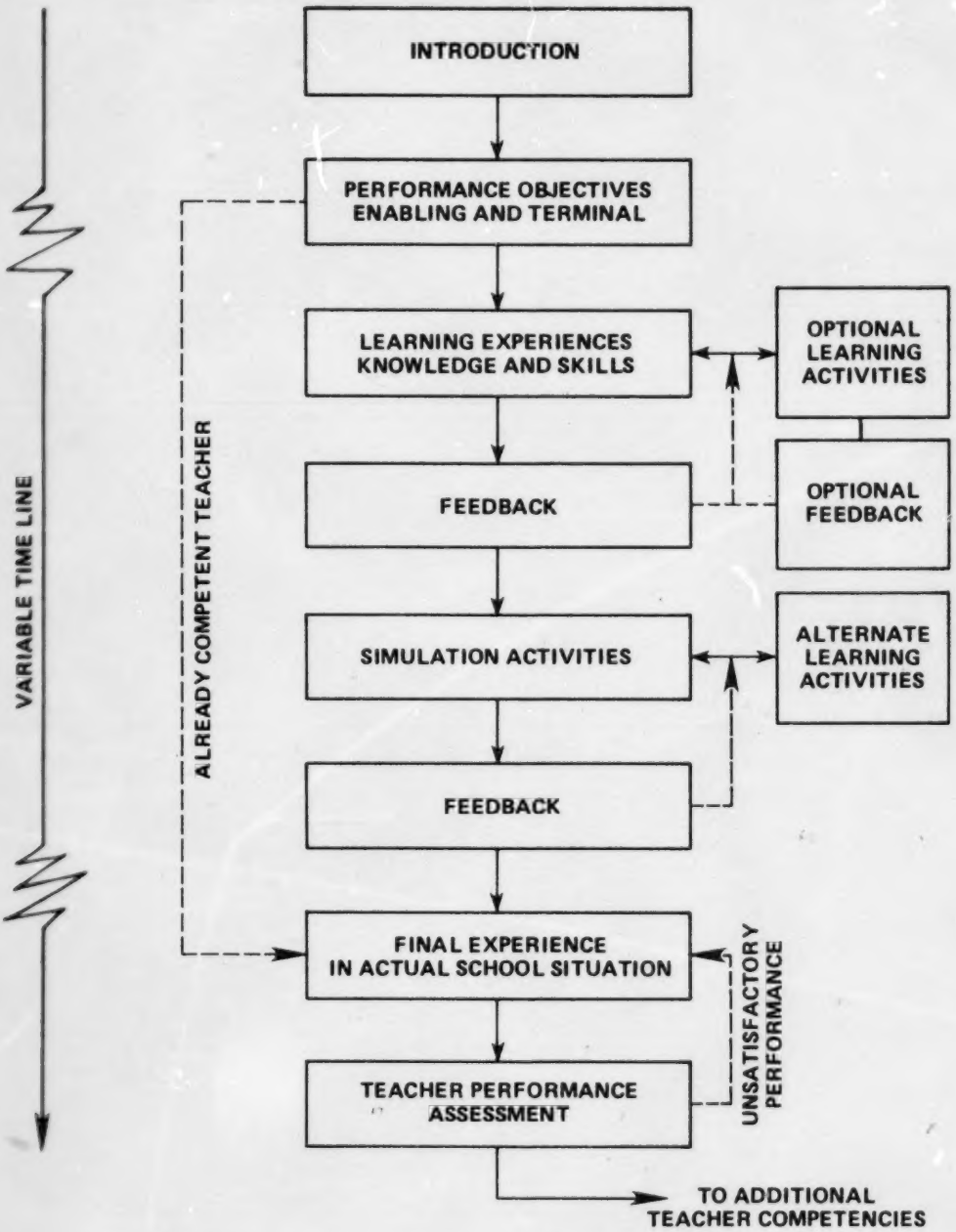


Figure 3. Common Pattern for Learning Experiences in the CVE Modules

The total number of learning experiences needed, and the specific structure of each learning experience, will vary from module to module depending on the competency to be achieved and your best judgment as to what the teacher needs to reach the objective.

The skill of preparing for a community survey, for example, requires knowledge of several different areas (obtaining administrative approval, organizing a steering committee, identifying the geographical area for the survey, etc.) and extensive planning skills. The CVE module covering this competency contains six learning experiences. Each of the first five learning experiences combines the presentation of new information (cognitive) with planning/practice activities (simulation). That is, it was felt that the large amount of information involved should be presented in fairly small, manageable units, with immediate application by the teacher of the new information in each learning experience.

On the other hand, a skill such as introducing a lesson involves a relatively small amount of background knowledge but requires a good deal of practice if it is to be handled smoothly and effectively. The CVE module covering this skill contains four learning experiences. The first learning experience presents all the basic information; the next three learning experiences guide the teacher through increasingly more realistic applications of this information (critiquing another teacher's performance, then simulating with peers, then performing the competency in an actual school situation).

Regardless of the number and specific structure of the learning experiences within a module, however, the instructional sequence should always follow a pattern in which cognitive knowledge is given first, and opportunity to apply the information (practice the competency) is provided before the teacher demonstrates the skill in an actual school situation.

In addition, as Figures 2 and 3 illustrate, every learning experience, and every activity within a learning experience, should be designed to lead directly to achievement of the terminal objective of the module. This point cannot be stressed too strongly. As you design each learning experience and select and develop the activities to include within it, you must keep constantly in mind the competency you are helping the teacher achieve.

What information does a teacher need about the competency and how to perform it? What is the best way for him/her to get this information? How much and what kinds of practice does the teacher need? Your answers to these and other similar questions should shape the learning experiences and activities you design.

If the teacher is to learn how to demonstrate a manipulative skill, for example, he/she needs to know and practice the steps involved. Would it help to watch a skilled teacher perform such a demonstration in the classroom? If the teacher is to develop a brochure, he/she needs to know the kinds of layouts and materials that work best. Does the teacher need to see some sample brochures before trying his/her hand at it? A module which purports to help the teacher use the overhead projector to present

information during a lesson, but (1) never mentions how to set up and operate the equipment, or (2) never explains how to select the appropriate projection technique, or (3) never requires the teacher to practice with the actual equipment or plan a lesson involving its use, will be of little use to the teacher in developing the competency.

A related point is that the learning experiences should not include information and activities which are not clearly related to, or necessary for, developing the competency being addressed. For example, the teacher who wants to learn how to develop a promotional brochure probably does not need to know about the history of printing, or to be able to trace the growth of the brochure as a public relations device down through the years, however interesting this information might be. Simulating a mass mailing of brochures would be busywork (but planning distribution procedures would not be). Similarly, although photographs can enhance a brochure, the teacher does not need to use them, or to be an expert photographer, to develop an effective brochure. Thus, activities requiring their use or requiring that the teacher have special skills would be inappropriate. (Such activities could, however, be included as *optional activities* to supplement and enrich the learning experience.)

In designing the learning experiences, keep in mind that the teacher should have the option of skipping a learning experience if he/she already has the knowledge or skill covered in that learning experience. Thus, each learning experience should stand on its own; the teacher should not be required to complete one

in order to do the next. The learning experiences should progress logically from knowledge to practice to actual performance, but should not include activities which force the teacher to complete a learning experience he/she might otherwise have been able to skip. For example, if one learning experience involves developing a series of oral questions which could be used during a lesson, and the next learning experience involves presenting a lesson using oral questioning techniques, the teacher should not be required to use the questions from the previous learning experience. The teacher should be given a choice as to questions he/she could use.

As indicated earlier, the learning experiences should provide the teacher with the knowledge he/she needs concerning the skill and the opportunity to apply that information in practice situations, and should require demonstration of the competency under actual school conditions. The latter component is always provided in the *final learning experience* of the module, which must be completed in an actual school situation (see p. 56 for guidelines for writing the final experience). The knowledge and practice components are provided in the *enabling learning experiences* which prepare the teacher for his/her real school demonstration of competency. All enabling learning experiences have three sections--

- Overview
- Activities
- Feedback

Overviews

Each enabling learning experience in the CVE modules is preceded by an *overview* of its contents (see Sample 13). The overview should give the teacher and the resource person a quick summary of the purpose of the learning experience and what the teacher will be doing in completing it. It should contain--

- a statement of the *enabling objective*
- a brief description of the *activities* to be performed, in the order in which they will be done
- a brief statement of the *feedback* technique(s) which will be used to determine whether the objective was achieved

Some writers prefer to write the overviews first, as part of the planning process they go through in developing the learning experiences. The overviews can then be used by the module writer as a kind of outline to guide the detailed development of the learning experiences. Others prefer to write the overviews after the learning experiences have been written. In either case, the parts of the overviews should meet the following guidelines.

SAMPLE 13

Learning Experience I

OVERVIEW

After completing the required reading, demonstrate knowledge of the rationale for, and procedures involved in, directing field trips.

You will be reading the information sheet, Directing Field Trips, pp. 6–15.

You may wish to view the slide/tape presentation, "Field Trips—The Use of Community Resources."

You may wish to interview a teacher experienced in directing individual or group field trips.

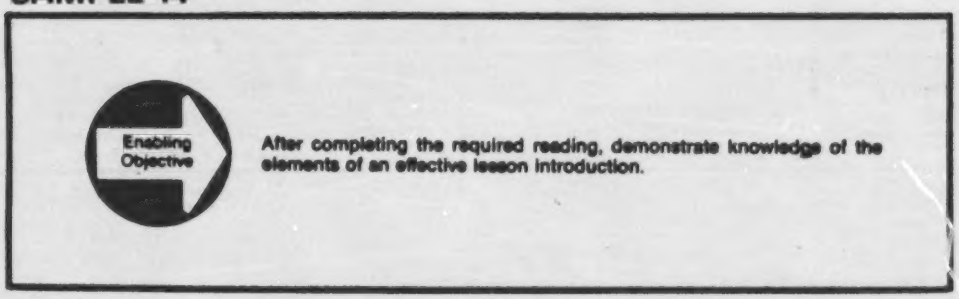
You will be demonstrating knowledge of the rationale for, and procedures involved in, directing field trips by completing the Self-Check, pp. 15–16.

You will be evaluating your competency by comparing your completed Self-Check with the Model Answers, pp. 19–20.

Enabling objectives.--An enabling objective is a process-type objective that helps the teacher progress toward achievement of the terminal objective of the module.

- State the enabling objective for the learning experience in performance terms. Include the condition under which the teacher will be performing the activity, and the activity describing what the teacher will be doing. Do not state the criterion at this point (see Sample 14).

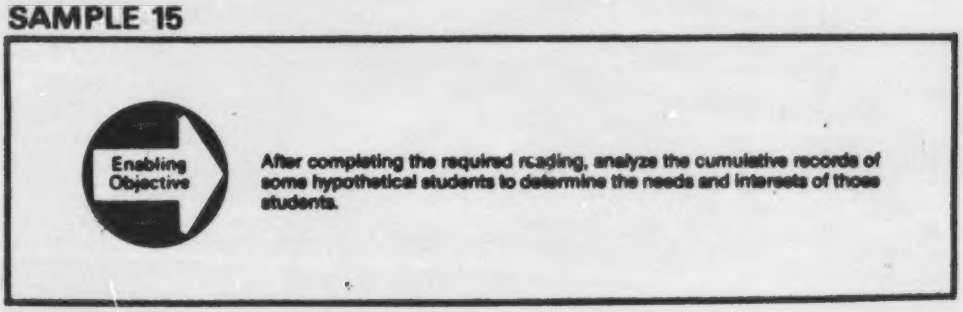
SAMPLE 14


Enabling Objective
After completing the required reading, demonstrate knowledge of the elements of an effective lesson introduction.

- The enabling objective should reflect the type of learning experience in which the teacher will be involved. If the learning experience is purely cognitive (no planning or practice included), use the form illustrated in Sample 14 ("After..., demonstrate knowledge of...").

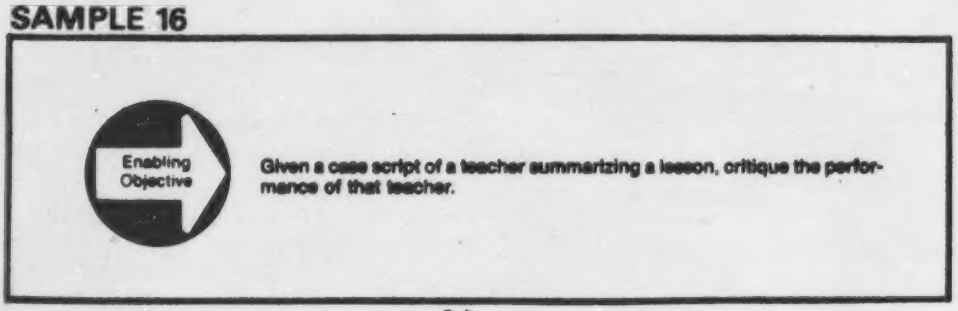
  If the learning experience combines the presentation of new information with some sort of practice or application, both components should be included in the objective, as shown in Sample 15.

SAMPLE 15

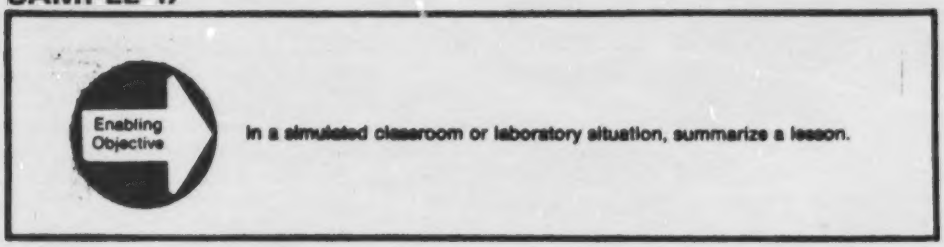

Enabling Objective
After completing the required reading, analyze the cumulative records of some hypothetical students to determine the needs and interests of those students.

- If the learning experience is purely practice, indicate this in the objective, making clear the level of realism involved in the practice experience. (See Samples 16 and 17.)

SAMPLE 16



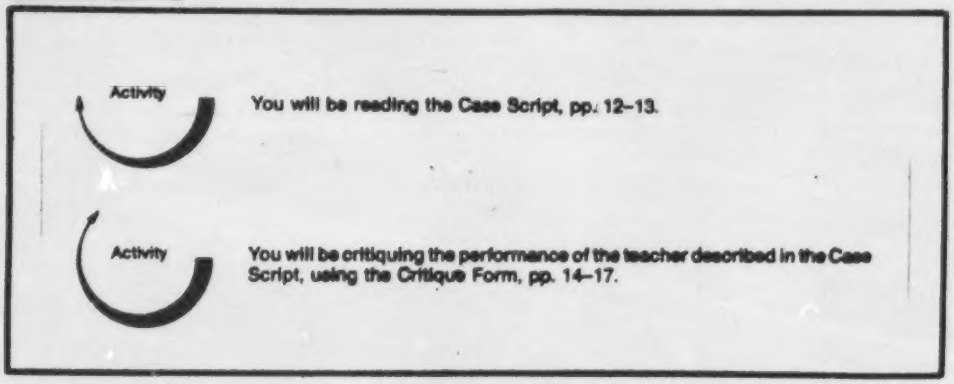
SAMPLE 17



Description of activities.--Each activity to be performed needs to be listed in the overview.

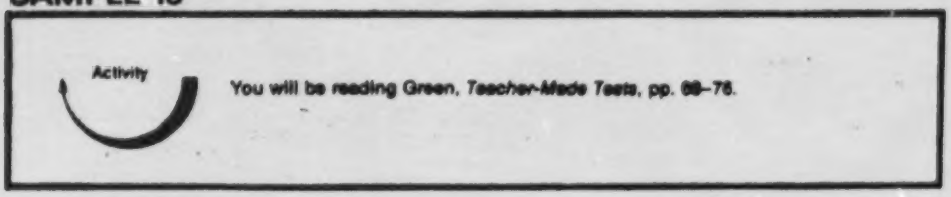
- The activities to be performed should be described briefly. Save any explanations of why or how the teacher will be doing the activity for the internal directions of the learning experience, which follow directly after the overview. (Think of the overview as an expanded table of contents for the learning experience.)
- For required activities (and feedback), use the future tense, "You will be...," so the teacher knows that he/she is not expected to complete the activity at this point.
- Give only the essential information (titles of information sheets or other material to be read, forms to be used, etc., and the page numbers on which these can be found in the module), as illustrated in Sample 18.

SAMPLE 18


Activity
You will be reading the Case Script, pp. 12–13.
Activity
You will be critiquing the performance of the teacher described in the Case Script, using the Critique Form, pp. 14–17.

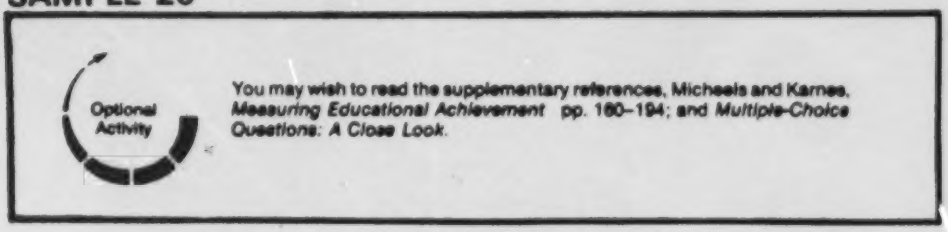
- In listing outside references to be read, list only the author's last name, the name of the book, and the page numbers (see Sample 19).

SAMPLE 19



- *Optional* activities (and feedback) should begin with "You may wish to..." to signal the teacher that the activity is not required (see Sample 20).

SAMPLE 20


Optional Activity
You may wish to read the supplementary references, Micheels and Karnes, *Measuring Educational Achievement* pp. 160–194; and *Multiple-Choice Questions: A Close Look*.

- *Alternate* activities should be listed after the required activities. A note referring the teacher to these activities should precede the listing of required activities (see Sample 21).

- Samples 13-21 illustrate the use of graphic symbols in the CVE modules to identify the type of activity involved (solid arrow for required activities and feedback, broken arrow for optional items, etc.). Such symbols are not absolutely essential; however, module users learn to recognize these symbols and to use them in readily locating learning experience activities as they work their way through a module.

  Note: The symbols used in the CVE modules were not copyrighted, in order for module developers to use these symbols without requesting permission if they choose to do so.

SAMPLE 21

Learning Experience III

OVERVIEW

In a simulated situation, direct or critique the direction of a group field trip.

NOTE: The next two activities involve role-playing with peers. If peers are not available to you, proceed directly to the explanation of the alternate activity below.

You will be selecting a student performance objective in your occupational area which lends itself to the use of a group field trip.

You will be conducting peers on the planned field trip, and meeting with them after the trip to evaluate the experience.

Your performance in directing a group field trip will be evaluated by your peers, using the Group Field Trip Checklist, pp. 33–42.

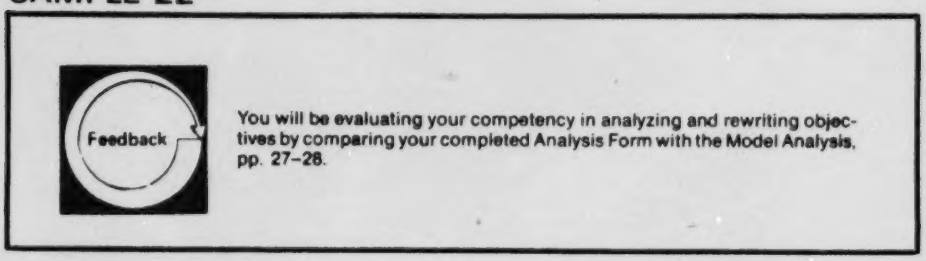
You will be reading the Case Studies, pp. 43–45, and writing critiques of the performance of the teachers described.

You will be evaluating your competency in critiquing the teachers' performance in directing group field trips by comparing your completed critiques with the Model Critiques, pp. 47–48.

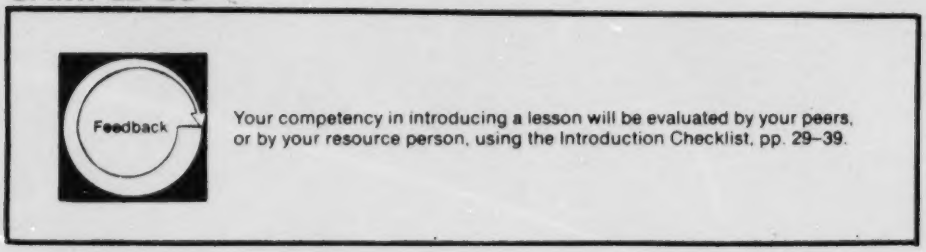
Statement of feedback.--Each learning experience should contain one or more devices to provide the user with feedback. These feedback devices need to be listed in the overview.

- The feedback statement(s) should indicate who will be evaluating the activity, the method that will be used, and the titles and page numbers of any forms to be used in the evaluation (see Samples 22 and 23).

SAMPLE 22


Feedback
You will be evaluating your competency in analyzing and rewriting objectives by comparing your completed Analysis Form with the Model Analysis, pp. 27–28.

SAMPLE 23


Feedback
Your competency in introducing a lesson will be evaluated by your peers, or by your resource person, using the Introduction Checklist, pp. 29–39.

Activities

Following the overview page for each enabling learning experience, the *activities* to be completed by the teacher in achieving the enabling objective for that learning experience should be presented and explained. The activities and associated materials (information sheets, critique forms, checklists, etc.,) should be presented in the order in which the teacher is to complete them. (It is very important that the teacher be able to work straight through the module from front to back, without flipping back and forth to find directions, checklists, etc.)

As indicated earlier, the enabling learning experiences should provide the teacher with the knowledge and practice he/she needs to achieve the terminal objective of the module--performance of the competency in an actual school situation. Achieving the enabling objectives for the learning experiences should prepare the teacher for this demonstration of competency. Thus, the activities for each learning experience should be carefully selected and designed to lead to (1) achievement of the enabling objective and, ultimately, (2) achievement of the terminal objective.

In learning experiences in which you wish to provide the teacher with necessary knowledge or background information concerning the competency or some aspect of it, the following types of learning activities could be used.

Cognitive Activities

- reading an information sheet contained within the module
- reading a supplementary outside reference (e.g., textbooks, handbooks, state laws and other documents, equipment catalogues, etc.)
- locating and examining samples (e.g., sample courses of study, lesson plans, news releases, etc.)
- observing an experienced teacher perform the competency
- viewing a film, filmstrip, slide/tape or videotape, or listening to an audiotape
- meeting with an experienced teacher or other expert to discuss concepts, obtain specific information, or examine materials or systems

- meeting with peers in a small-group or seminar-type situation to discuss and explore concepts, and share ideas and experiences related to the competency

- attending and observing a school or community event (e.g., an open house, advisory committee meeting, student vocational organization contest, employer-employee appreciation event, etc.)

In learning experiences in which the teacher is to practice or apply all or part of the competency, any number of learning activities is possible, including the following types.

Practice Activities

- reacting to and/or critiquing case studies or case scripts

- critiquing sample plans or materials

- critiquing videotaped teacher performances

- planning in writing

- performing the skill in a simulated situation with peers *role-playing students*

- developing materials (e.g., brochures, news releases, exhibits, handbooks, etc.) or systems (filing systems, first aid procedures, etc.)

- operating equipment (e.g., audiovisual equipment)

- writing reports, letters, etc.

- analyzing data (e.g., cumulative records)

Selecting learning activities.--Following are some general guidelines for selecting learning activities.

- All learning activities should relate directly to the objective of the learning experience and to the achievement of the terminal objective of the module. For example, any outside readings you assign (or suggest as optional activities) must be thoroughly checked to (1) ensure that

they do, in fact, contain the information you want the teacher to have, and (2) enable you to assign only relevant sections of the material. Make certain the reference is up to date and accurate. Looking at the title and skimming the table of contents is not enough; carefully review the material yourself.

- Outside references, whether required or optional, should be standard enough that the teacher will be able to locate them in his/her school library, resource center, or community.

- Use a variety of learning activities to suit a range of learning styles and interests, and to allow for both individual and group work.

- Provide for interaction between the teacher and the resource person, other pre- and/or inservice teachers, and others in the school and community.

- Include supplementary activities (optional) to enrich the learning experience and allow the teacher to explore a topic in more depth. These can include reading outside references, videotaping one's performance, interviewing experienced teachers, discussing concepts with peers, etc. (See Samples 25-27.)

- Keep the activities realistic. Don't require the teacher to write 50 true-false questions if 10 are enough to give him/her the practice needed. Take into consideration the amount of time an activity will take and the probable availability of the resources (people, equipment, situations) involved.

The module should be as self-contained as possible. (Preliminary testing of the CVE modules revealed that relying heavily on outside readings and other sources made it much harder for teachers to complete the modules.) In theory, this means that everything the teacher will need in order to complete the module (information sheets, self-check devices, case study problems, planning forms, checklists, etc.) is included within the module. In practice, however, this is not always possible or even desirable. The items mentioned above should always be included within the module. But there will be times when achieving the

objective will require sending the teacher to outside sources. For example, you cannot include all the handbooks of the various student vocational organizations within the covers of a module on establishing such an organization. Yet, there is no good substitute for reading the actual document. This has several implications for selecting learning activities, as follows:

- If the information can be effectively provided through an information sheet, do not require an outside reading, visit, or observation.
- Limit required outside readings to those essential to achieving the objective, or those of such exceptional value that an information sheet paraphrasing the content would be a poor substitute.
- Activities which send the teacher to outside sources can be included as *optional* activities, unless they are essential to achieving the objective.
- Whenever an activity requires the use of peers (e.g., to role-play students during a simulation activity), provide an *alternate* activity which does not require their involvement (see p. 39 for guidelines for writing alternate activities).
- The *resource person* will always be involved in the *final experience* to assess the teacher's competency. Try to limit his/her involvement prior to the final experience to those occasions when it is critical that he/she check the teacher's progress or review a product or performance. If it would be helpful, but not essential, to include the resource person in a learning activity, suggest an optional activity involving his/her participation.

Having selected the activities to include within the learning experiences, you are ready to develop each activity. It would be impossible, within the intended scope of this handbook, to discuss separately and in detail all of the many types of activities suggested thus far or included in the CVE modules. However, some general guidelines for writing the directions for

various types of activities will be given, with samples illustrating key points. In addition, guidelines for writing *information sheets* and *self-check* activities will be outlined.

Writing directions.--The directions for each activity should be simple, clear and complete.

- Be certain that you tell the teacher (1) what to do, (2) how to do it, and (3) why it is being done, as shown in Samples 24-26.

SAMPLE 24

For information concerning the purpose of lesson planning, and the major components of a good lesson plan, read the following information sheet:

SAMPLE 25

If you are interested in seeing more sample lesson plans or lesson plan formats specific to your service area, you may wish to check one of the following sources: inservice teachers, a resource person, a library, or a resource center. Try to locate a variety of forms for a variety of situations.

You might also want to discuss planning guidelines with an inservice teacher or resource person. You may wish to structure the discussion around certain key questions, e.g.:

- What basic form or forms does he or she use in planning?
- Does he/she use different forms for different purposes?
- How much information do these forms include?
- How does he/she involve students in the lesson planning process?
- How much time does he/she spend each week in preparing lesson plans?

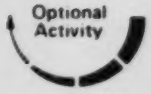
SAMPLE 26

You may wish to arrange to meet with your resource person and/or peers who are also taking this module. At this meeting you could (1) discuss what you have heard or read about performance objectives, (2) attempt to generate sample objectives for your service area that are precise, or (3) review existing objectives to determine if they are precise and action-oriented.

- As Samples 25 and 26 illustrate, when activities call for interviews or discussions with other people (experienced teachers, peers, etc.), the teacher should be given suggestions for the kinds of questions to ask or areas to pursue during the meeting.

- As illustrated in Sample 27, when recommending outside references as optional readings, tell the teacher what to look for in the reading, and why it is suggested he/she read the material.

SAMPLE 27



For further information on using role-playing activities in the classroom, you may wish to read Clark and Starr, *Secondary School Teaching Methods*, pp. 238–242; Hoover, *Learning and Teaching in the Secondary School*, pp. 314–325; and/or Maier, Solem, and Maier, *The Role-Play Technique: A Handbook for Management and Leadership Practice*. Each of these sources has applicability for both secondary and post-secondary teaching; however, the Maier *et al.* text should prove especially valuable to the post-secondary instructor. The text provides complete instructions for a number of situations involving problems and conflicts associated with job supervision and employment conditions in general. The situations are carefully described and the roles to be played are developed in detail. Sample titles of the role-plays included are "The Frustrated Supervisor," "The Use of Office Phones," "The Problem of Overtime," "The Promotion Interview."

- If the teacher is to critique a case study, case script, or some written product (e.g., a lesson plan written by a hypothetical teacher), the directions should include (1) what the teacher is to read, (2) what he/she should base the critique on (e.g., questions following the case study; a critique form; an information sheet), and (3) what is to be done with the material (e.g., critique in writing). (See Samples 28-30.)

SAMPLE 28

The following Case Studies describe how three vocational teachers trained and/or used students as tutors or as presenters. Each case study is followed by some key questions relative to the teacher's performance. Read each case study, and critique it in writing using the questions as guides.

CASE STUDIES

Case Study 1:

Mr. York relied very heavily on the demonstration method as a means for presenting information since his course involved a lot of manipulative skills. Initially, he presented the demonstrations without any student assistance. Later in the term, he would use the three-step approach: (1) he would first perform the operation and tell what was occurring; (2) he would then have a student perform the operation while he (Mr. York) told what was occurring; and (3) he would then have another student both perform the operation and tell what was occurring.

Because of this perpetual exposure to demonstrations, and because students were gradually involved in performing demonstrations, he figured that by second semester he could turn the responsibility for presenting demonstrations completely over to the students. For the first demonstration to be presented during the second semester, he picked two students. He gave them an outline of the necessary steps involved in the skill, and turned them loose to plan, prepare, set up, and present their demonstration on their own.

How effective is Mr. York's training program? How effective is the use of student presenters for the second semester? In what ways could his system be improved?

SAMPLE 29

The following Case Script describes how Mr. Martino, a vocational teacher, demonstrated the principle of supply and demand to his students. With the criteria for presenting an effective concept/principle demonstration in mind, read the situation described.

CASE SCRIPT

Mr. Martino is sitting at his desk, wiping his forehead with a handkerchief.

Mr. Martino:

This heat is terrible. It's almost too hot to hold class.

The students indicate that they more than agree with that statement.

It's hot enough to fry an egg on the sidewalk. I'll bet you'd rather be drinking a can of lemonade instead of frying eggs.

Jeff:

I could go for something cold to drink. I like your idea about not holding class even better.

Mr. Martino:

I'm afraid you're stuck, Jeff . . . but back to the lemonade. I have a can right here I'd be willing to part with . . . for the right price. Which of you is interested in cooling off, for say, a dollar?

Mr. Martino:

I think I can come up with one more before you melt. You win. You know, I did bring one for myself. I sure hate to see the rest of you go thirsty. . . .

As Mr. Martino continues to produce cans of lemonade, the students offer lower and lower prices. Juan buys another for sixty cents. Jeff offers him twenty cents if he can find just one more can.

Ben, would you pay more than Jeff offered me?

Ben:

Rats, Mr. Martino. All I've got is twenty cents. I sure could use a drink of something right now, though.

Mr. Martino:

It looks like no one's going to give me more than twenty cents. I'll give Jeff his drink for that, and there's one here for Ben, too. Pay up, boys! Paul,

Below is a Critique Form with questions to guide you in preparing a written critique of Mr. Martino's competency in demonstrating a principle. Read each question and indicate, by circling the YES or NO, whether Mr. Martino accomplished each item. Briefly explain your responses in the space provided for comments below each item.

CRITIQUE FORM

1. Did Mr. Martino select an example of the principle which could be easily demonstrated. YES NO

   Comments:

2. Was the demonstration set up where it could be easily viewed by each student? YES NO

   Comments:

SAMPLE 30

Below is a Lesson Plan which is partially incorrect and/or incomplete. Based on the material contained in the information sheet, The Why's and How's of Lesson Planning, pp. 6–15, critique in writing this plan. It is suggested that you critique each section in turn, indicating strengths as well as weaknesses.

- If a teacher is to use particular materials in completing an activity, he/she should be told what these are, where to locate them, and what to do with them. In many cases, the materials can be included in the module, directly following the explanation of the activity, as illustrated in Sample 31.

SAMPLE 31

Assume that you will be teaching an advanced course in typewriting to the group of students whose cumulative records follow.[2] Review these records, making mental notes as to items of significance relating to the needs and interests of these students as a group. After you have reviewed the six folders, analyze in writing the needs and interests of the class as revealed by the data given. Consider the students' physical, social, emotional, and educational needs, and their personal, school, and occupational interests. The form or system you use for analyzing and recording the relevant information is up to you; the important consideration is that you identify those individual and group needs and interests that would be significant if you were teaching this class.

- In other cases, the teacher will be given directions to obtain the necessary items on his/her own, with assistance from the resource person if needed (see Sample 32).

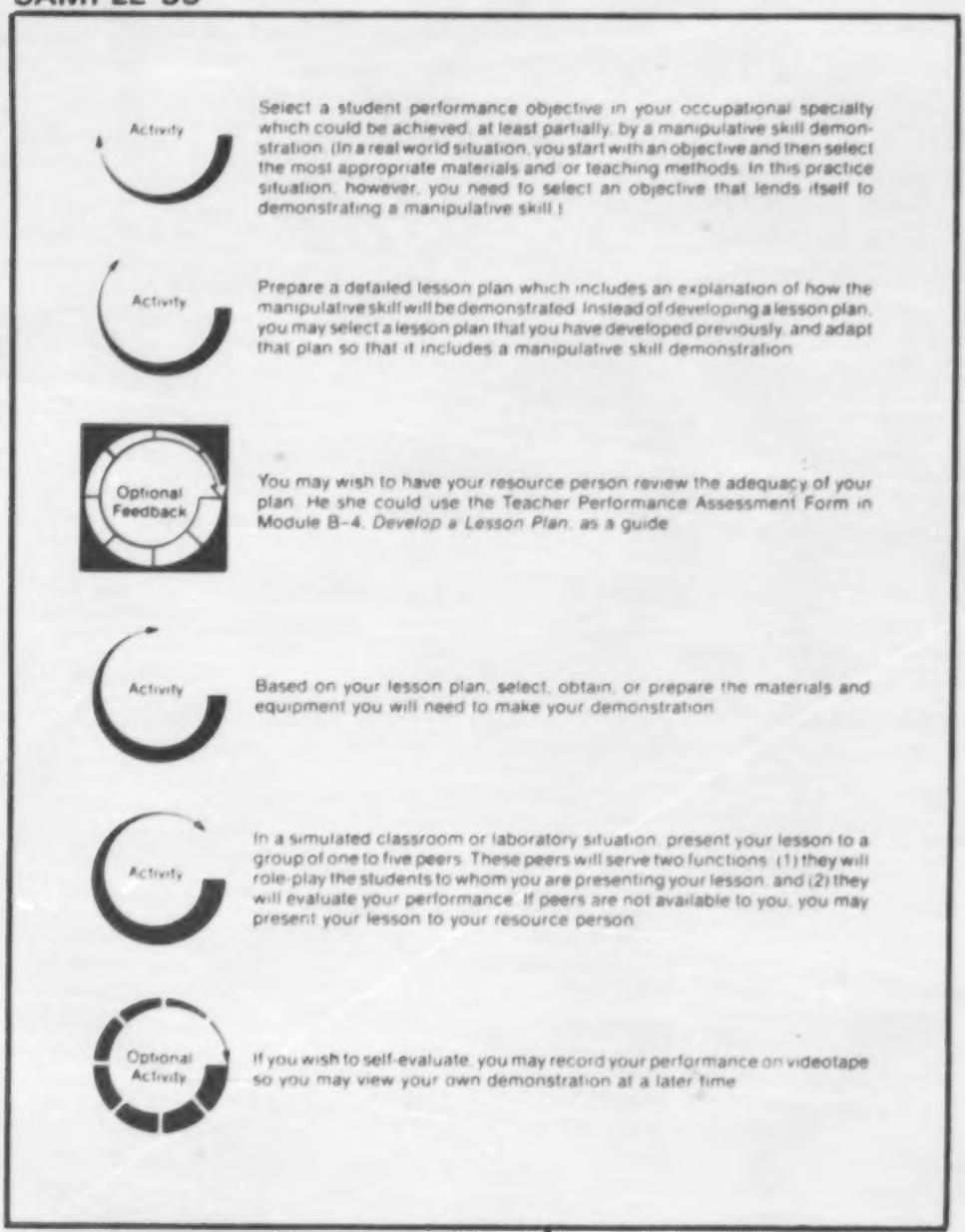
SAMPLE 32

Select resources in your occupational specialty which will provide vocational program content information for knowledge, skill, and attitude types of performances. Resources could include curriculum guides, courses of study, textbooks, or task analyses. The resources you select should cover all domains. If you need assistance in finding resources, contact your resource person.

For the content you selected, write student performance objectives in the cognitive, psychomotor, and affective domains. Write at least ten cognitive, five psychomotor, and five affective objectives, numbering each objective for easy reference during feedback. Be sure that (1) each objective contains statements of performance, condition, and criterion, (2) the performance is stated precisely, and (3) the condition and criterion are realistic. When writing the cognitive objectives, include at least three objectives which call for more than mere recall.

- The directions for practice or simulation activities involving role-playing with peers should indicate (1) how many peers are needed, (2) whether peers need a certain background (e.g., persons who have taken the same module; persons in the teacher's own service area, etc.), (3) what the peers will be doing (e.g., role-playing students; evaluating the teacher's performance), and (4) what to do if peers are not available. Sample 33 illustrates a common pattern of activities for a learning experience in which the teacher is to plan and present a lesson in a simulated situation.

SAMPLE 33


Activity
Select a student performance objective in your occupational specialty which could be achieved, at least partially, by a manipulative skill demonstration. (In a real world situation, you start with an objective and then select the most appropriate materials and or teaching methods. In this practice situation, however, you need to select an objective that lends itself to demonstrating a manipulative skill.)
Activity
Prepare a detailed lesson plan which includes an explanation of how the manipulative skill will be demonstrated. Instead of developing a lesson plan, you may select a lesson plan that you have developed previously, and adapt that plan so that it includes a manipulative skill demonstration.
Optional Feedback
You may wish to have your resource person review the adequacy of your plan. He she could use the Teacher Performance Assessment Form in Module B-4, *Develop a Lesson Plan*, as a guide.
Activity
Based on your lesson plan, select, obtain, or prepare the materials and equipment you will need to make your demonstration.
Activity
In a simulated classroom or laboratory situation, present your lesson to a group of one to five peers. These peers will serve two functions: (1) they will role-play the students to whom you are presenting your lesson, and (2) they will evaluate your performance. If peers are not available to you, you may present your lesson to your resource person.
Optional Activity
If you wish to self-evaluate, you may record your performance on videotape so you may view your own demonstration at a later time.

- Generally speaking, your directions need not give extensive explanations of the roles to be played by peers, because they will usually be asked only to pretend to be students while the teacher teaches. However, when the activity involves a more complicated or unfamiliar role, you will need to structure the peer's role and carefully explain how to proceed, as illustrated in Sample 34.

SAMPLE 34

Ask one of your peers to assist you in this learning experience. This peer will serve two functions: (1) he/she will role-play the student whom you are directing in applying problem-solving techniques, and (2) he/she will evaluate your performance. To help this peer develop his/her role, have the peer read through the 11 questions on the Job Selection Sheet which follows and think through how he/she would answer each question. The questions are designed to help the peer think about his/her real feelings concerning the important considerations in selecting a job.

JOB SELECTION SHEET

1. Which is more important to you, job satisfaction or financial reward?
2. Would you give up evenings and weekends to get ahead in your job?
3. Are you a "team player" or a "loner"?
4. If your job required it, would you move to a city far away from your home town?
5. Do you react well to fierce competition, or does it make you uncomfortable?
6. Would you like to own your own business? . . . be your own boss?
7. Which would you prefer, a 9–5 "time clock" sort of job, or one which leaves the responsibility for completing work (whatever the hours) up to you?
8. Which do you prefer, city living or small town life?
9. Do you need a pleasant, attractive work environment in order to work efficiently?
10. How do you react to heavy pressure? . . . deadlines?
11. Are you willing to put off financial reward (work your way up), or do you expect immediate returns?

Ask your peer to assume that he/she is involved in the following Problem Situation. Guide the peer in identifying and defining the problem to be solved, determining the factors, gathering or identifying information needed to solve the problem, examining possible solutions, selecting a tentative solution, and mentally evaluating the proposed solution. **NOTE:** Some relevant information may be missing. If so, you will need to help the peer determine what other facts are needed and how these facts can be located.

PROBLEM SITUATION

You have just graduated from high school, and have been offered two jobs, one in your small home town and one in a large city 2,000 miles away.

The work surroundings look quite comfortable. Since there are no windows, the noise from the heavy city traffic and the smoke from the nearby factories won't be a problem.

- If peers are used in a required activity, an *alternate* activity must be provided for those teachers who cannot locate peers to work with. You can handle this in one of two ways. If the resource person can reasonably act as the "audience," the directions can simply suggest this alternative to the teacher, as illustrated in Sample 33. If involving the resource person would be difficult or ineffective, a separate alternate activity (usually critiquing or reacting to case studies or case scripts) should be provided. A *note* (see Sample 35) directing the teacher to this alternate activity should precede the directions for the role-play activity.

SAMPLE 35

> **NOTE:** The following activities involve role-playing with a peer. If a peer is not available to you, turn to p. 29 for an explanation of the alternate activity.

Writing information sheets.--Most modules will present the necessary background knowledge and information concerning the competency in the form of *information sheets* (usually several pages long) included within the module, with optional readings, observations, discussions, etc., suggested to supplement and enrich the learning experiences. As illustrated in Figures 2 and 3, the module learning sequence presents cognitive background first, followed by planning and practice activities. The first learning experience in most modules will include the reading of an information sheet, and information sheets may be included in other enabling learning experiences, depending on the terminal objective and how you have decided to structure the learning experiences. Thus, writing effective information sheets which provide the knowledge the teacher needs to understand and perform the competency is a critical aspect of your module writing responsibilities. Following are recommendations for developing such information sheets.

- The title of the information sheet should clearly and accurately reflect its content. If there is more than one sheet in the module, make sure the titles reflect the differences in content. The CVE module *Direct Student Laboratory Experience*, for example, contains five information sheets, one in each of the first five learning experiences. The first provides a general overview of the teacher's responsibilities, and is entitled "Directing Student Laboratory Experience." The remaining four cover the development of job sheets, operation sheets, information sheets, and work plans, and are entitled as follows--

  Developing Job Sheets

  Developing Operation Sheets

  Developing Information Sheets

  Directing Students in Developing Work Plans

  Note the difference between the last title and the preceding three: the last information sheet concerns helping students to plan their work; the others discuss how the teacher should go about developing various instruction sheets. Titles such as "Job Sheets" or "Work Plans" lack precision; they fail to indicate what type of performance is being discussed.

- The content of the information sheet should directly relate to the skill the teacher is to achieve. It should provide the step-by-step, practical, "how to" information the teacher needs to be able to understand the competency and how to perform it in the teaching situation (see Sample 36). This is not the time to write a highly theoretical treatise on the subject. Give the teacher the kinds of concrete, useful information you would want if you were an inexperienced teacher faced with the teaching responsibility being addressed.

SAMPLE 36

Activity

For information explaining the steps involved in the problem-solving process and describing how to use problem-solving as an instructional method, read the following information sheet:

DIRECTING STUDENTS IN APPLYING PROBLEM-SOLVING TECHNIQUES

Many situations in life present problems that need to be solved. A problem exists in any situation in which there is a difficulty or uncertainty which needs some creative or logical solution.

There are several approaches that you, as a vocational teacher, may use to direct students in applying problem-solving techniques. Although these approaches will be discussed in terms of their use with groups of students, these same techniques can be adapted for use with individual students.

Step I.—The first step in problem-solving is to determine what the problem is and to define it clearly. In normal circumstances, one recognizes that there is some sort of problem and then tries to pin it down. In the classroom, the problems to be discussed are very often real problems selected specifically to meet the needs of the lesson or the unit being taught. Problems may also be manufactured by the teacher for timely introduction to the class.

There are at least three methods of identifying problems for the class to use: (1) the problem can be brought up by an individual student who is experiencing the problem; (2) the teacher can present a problem area and then draw out the specific problem from the class by asking stu-

Step II.—After the problem has been formulated and defined clearly, the class needs assistance in determining the factors that are involved in, or associated with, that problem. In other words, what questions need to be answered, and what further information is needed in what areas, before a tentative solution can be arrived at?

In Sean's case, he would need information on (1) the availability, feasibility, reliability, and cost of each of the following types of transportation: bus service, car pool, buying a car, riding his bicycle; (2) the exact days, hours, and wages that would be involved in the part-time job; and (3) his financial status in terms of meeting costs involved in transportation.

- If the module is to contain one information sheet covering what the teacher needs to know, it should include both a general overview of the entire subject, and specific instructions concerning all essential aspects of the skill to be achieved.

- If you are taking a more cumulative approach to presenting the necessary information (e.g., the overall competency involves several fairly distinct skills which can be more effectively mastered if treated separately), the first information sheet should provide an overview of the important considerations involved in the competency. Additional information sheets should then assume knowledge of this basic information on the part of the teacher, and expand on particular aspects of the competency.

- The information you provide should be applicable to all service areas, unless you are writing modules for one service area only. This does not mean writing in generalities, however. Provide specific, concrete examples drawn from a variety of service areas, and as many actual samples as you can reasonably include, as illustrated in Sample 37.

Activity

For information about the specific characteristics of the operation sheet, and how to develop operation sheets for laboratory use, read the following information sheet:

DEVELOPING OPERATION SHEETS

An "operation" is **one step** in the process of doing a complete job. Driving to the grocery store for a quart of milk is a job, but getting the engine of the car started is one operation in that job. Each defined operation in a trade requires some special knowledge or skill and is usually the topic of a lesson or demonstration presented by the teacher.

When the lesson is written out, duplicated, and given to students, it becomes an "operation sheet." For example, in the owner's manual of every new automobile there is an operation sheet on "How to Start the Engine." Operation sheets are applicable to all types of teaching in which the subject matter can be analyzed into units of performance.

The following list of examples indicates one of the operations that would be involved in the given job:

Occupation	Job	Operation
Auto Mechanics	Engine tune-up	Remove and replace spark plugs
Cosmetology	Manicure	Apply nail polish
Agriculture	Propagate trees	Make a veneer graft
Carpentry	Build a hip roof	Lay out common rafters
Dressmaking	Make a skirt	Put in a zipper
Drafting	Make a working drawing	Use a compass
Office Machines	Produce stencil materials	Make a stencil
Printing	Produce a letterhead	Ink the press
Upholstering	Reupholster a chair	Attach the webbing

Modern textbooks in the occupational service areas are usually filled with clearly written and well-illustrated instructions for common operations. The teacher will find it worthwhile to develop or duplicate operation sheets for the class if—

- the operation is new or unusual, or for some other reason textbook instruction is not available
- students need to refer to instructions frequently in order to complete the laboratory work
- it is desirable for students to have the operation sheet in their notebooks for future reference on the job

The operation sheet should be distributed to each student individually when he or she is ready for it. Such sheets may be provided to students after a teacher demonstration in a conventional program—or may be included in learning packages or modules in an individualized vocational program. Sample 3 is an example of a simple operation sheet that might be used in a vocational agriculture lab.

SAMPLE 3

OPERATION SHEET

OPERATION TITLE: Making a veneer graft on tree stock.

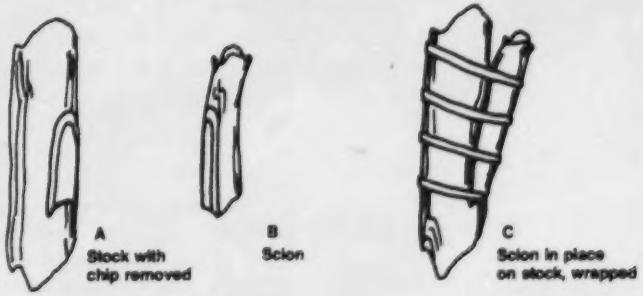
PURPOSE: The veneer graft can be used successfully to propagate fruit trees on stock one year old or older.

CONDITIONS OR SITUATIONS FOR THE OPERATION: Scions should be terminal, 3 to 4 inches long, ⅜ to ½ inch in diameter. Buds should be swollen, but not sprung. A large terminal bud on scion is preferred.

EQUIPMENT, TOOLS, AND MATERIALS: .0035" vinyl film strips
sharp knife

PROCEDURE:

1. Make a slanting cut about 2" long in side of **stock** so that at the bottom the cut is 1/16" to 1/8" in depth.
2. Make an angular cut at the base of the large cut so as to remove the piece of bark and wood. (Fig. A).
3. From the **scion,** cut a piece of bark and wood to correspond with the cut in the stock. (Fig. B)
4. Fit the little tongue on the base of the scion into the notch at the lower end of the cut on the stock.
5. Wrap the graft snugly with a strip of vinyl film, leaving the terminal bud exposed. (Fig. C) The graft should take in 3 or 4 weeks.



A
Stock with chip removed

B
Scion

C
Scion in place on stock, wrapped

PRECAUTIONS: Exercise extreme caution when cutting the scion with the razor-sharp knife.

QUALITY CRITERIA:

1. A large terminal bud was selected for grafting.
2. Cut in stock is at least 1½" long and 1/16" in depth at the bottom.
3. Cut on scion fits neatly into cut on stock.
4. Graft is securely wrapped with bud exposed.

- All information should be accurate and up to date, reflecting the latest and best thinking on the subject. If there is more than one way to handle a particular teaching task, for example, or a range of opinions on the subject, the teacher should know this, and be given the opportunity to make his/her own judgments (see Sample 38).

SAMPLE 38

For information about why grades are used and the different systems used to determine student grades, read the following information sheet:

GRADING STUDENTS

Perhaps, you have always thought of grades as an inevitable part of instruction and have never considered why they are important or useful. As a student, you may have thought of grades only as something to anticipate or to dread, depending on your own innate abilities and the amount of studying you did for a particular course. As a prospective teacher, you may view the giving of grades as just a time-consuming task that's part of your job. Grades do have a vital and active role in the instructional process, however, and they have many basic functions.

Grading Systems

Grades represent judgments which a teacher makes about students' achievement of the performance objectives and specific criteria of a course. A grading system is a way of recording and reporting those judgments so that they are meaningful to others. You should not select a grading system arbitrarily, but should consult school administrators, teachers, employers, and students to determine what type of grade reports they need.

Written Evaluations

While few schools have a formal grade report which provides for extensive written comments, there is no reason why you cannot use written comments as a supplement to the normal grade report. Many teachers contend that a primary purpose of grading should be the transmission of information. They feel that traditional grades transmit almost no information because they do not explain the student's grade in terms of performance. If you feel this way, the use of written comments will allow you to explain why the student received a particular grade and how the grade should be interpreted. If the grade report form does not include space for written comments, you can attach a separate written evaluation to the grade report.

Although written comments require a considerable amount of teacher time, they are very helpful and worthwhile to students and others interested in student achievement because they are specific and detailed. A student who receives a "B" on a

- The reading level of the information sheet should be geared to the ability of the average pre- and inservice teacher. Avoid abstract theorizing; educational jargon; long, complicated sentences and paragraphs; and lofty vocabulary. For example, compare the following two sentences.

> "In the case of the situation as related to the field of education and the educational endeavor, present-day circumstances and other aspects make it apparent that conditions within this environment are governed by factors of a serious nature."
>
> "The schools are in trouble."

The first sentence takes 39 vague words to say what the second says simply and clearly in five words. Many vocational teachers are drawn directly from industry, and have been out of school for several years. Use simple, clear English (but don't talk down or condescend to your reader).

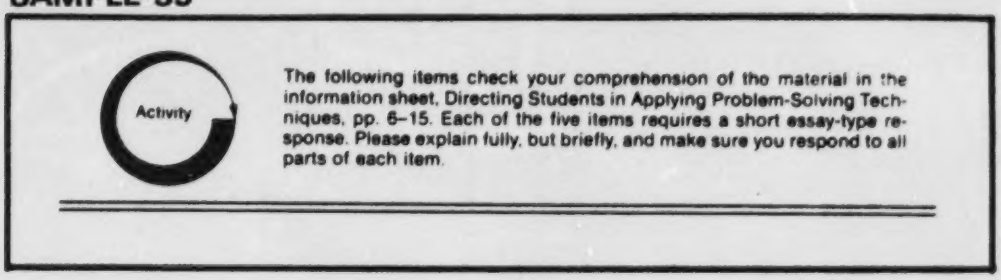
- Information sheets should be tightly organized, not rambling (writing an outline first can help).
- Break the key concepts and procedures into subsections, with clear headings (see Sample 38).
- Avoid plagiarism.
- Resist the temptation to quote authority or fill the information sheet with "impressive" footnotes; you are not writing a term paper or journal article.
- Set up rules for spelling, punctuation, grammar, and the meaning of terms; decide on the form you will use for headings, samples, footnotes, etc., and then follow these rules consistently in any information sheets you write. This is particularly important if different persons have responsibility for developing modules or various sections of a module.
- Write to the teacher (say "You need to..."); use the second person form as much as possible.
- Avoid the passive voice; say "You can use several methods...," not, "There are several methods that can be used by you...."
- The information sheets should be free of any racial or sex bias or stereotypes. Examples and illustrations should reflect the wide range of students and teachers in vocational education.

Writing self-checks.--Information sheets providing an overview of the basic concepts involved in performing the competency should be followed by a *self-check* activity to ensure the teacher's comprehension of the material before he/she attempts to practice or apply the teaching skills involved. (Information sheets covering relatively simple skills, or later information sheets covering specific aspects of the overall competency, may be followed immediately by practice or application activities.) Following are guidelines for writing self-check activities.

- Most self-checks in the CVE modules are composed of essay questions covering the basic concepts presented in the information sheet. This requires the teacher to express, or apply the knowledge in a new way. Some self-checks include matching, multiple choice, or completion type items, or some other device appropriate for checking the teacher's grasp of cognitive information.

- As shown in Sample 39, the directions for the self-check should briefly explain what material the teacher is being tested on, the type of item(s) the self-check contains, and how the teacher is to respond to each type of item.

SAMPLE 39


Activity
The following items check your comprehension of the material in the information sheet, Directing Students in Applying Problem-Solving Techniques, pp. 6–15. Each of the five items requires a short essay-type response. Please explain fully, but briefly, and make sure you respond to all parts of each item.

- The self-check should be comprehensive, covering all the key points presented in the learning experience.

- The items should not require obvious, rote responses, but should require the teacher to comprehend, apply, analyze, or evaluate the knowledge important to achieving the competency (see Sample 40).

- Avoid items asking the teacher to "list." The self-check should require the teacher to do more than copy answers from the information sheet.

SAMPLE 40

The following items check your comprehension of the material in the information sheet, Determining the Needs and Interests of Students, pp. 6–12. Each of the four items requires a short essay-type response. Please explain fully, but briefly, and make sure you respond to all parts of each item.

SELF-CHECK

1. Why should teachers be interested in collecting data about students' needs and interests?

2. After examining the students' cumulative folders, you discover that there are no scores recorded for standardized tests nor is there any evidence of previous employment. As a vocational teacher, what steps could you follow to secure this needed information?

3. After you have examined the information in the cumulative folder, what informal methods could you employ to find out additional information about students' needs and interests?

4. Based on your own experience and what you now know about determining students' needs and interests, do you think the procedures you would use, and the information you would seek to collect, would differ if you were teaching at the post-secondary level rather than the secondary level? Explain.

Feedback

Each enabling learning experience should include immediate feedback to enable the teacher to check his/her progress before continuing. The type of feedback device used will depend on the enabling objective for that learning experience and the nature of the learning activities.

Learning experiences requiring the teacher to "demonstrate knowledge" of the basic concepts involved in the competency, for example, should give feedback in the form of *model answers* to self-check questions. If the teacher is asked to critique a case study or case script, a *model critique* should be provided as feedback. Feedback on written plans, reports, etc., can be provided either through *model plans* and reports, or through *checklists* containing the criteria against which the written product is to be checked. Learning experiences involving performance of a skill (e.g., presenting a lesson to peers in a simulated situation) should provide *checklists* containing the performance criteria to be used in evaluating the teacher's performance.

Following are guidelines for constructing feedback devices:

- Model answers, critiques, plans, etc., should present all the key points the teacher should have included in his/her written response.
- The model responses should not include new information or understandings which the teacher could not be expected to have based on the learning activities thus far.
- However, in writing model responses, do not simply copy material from the information sheets or references. You want the teacher to do more than parrot facts; thus, your model responses should reflect real comprehension of the material. Additional insights,

fresh examples, etc., should be included to reinforce the key concepts for the teacher. Your responses, then, should be more detailed than you expect the teacher to give (almost like "mini-information sheets"), and the directions for the feedback device should reveal this to the teacher. (See Samples 41 and 42.)

SAMPLE 41

Compare your written responses on the Self-Check with the Model Answers given below. Your responses need not exactly duplicate the model responses; however, you should have covered the same major points.

MODEL ANSWERS

1. Collecting data about students' needs and interests is necessary in instructional planning. For example, this information can help teachers plan lesson activities that will motivate students, reach them at their level of ability, or fill in gaps in their educational background, etc. Students have individual needs which must be met in different ways. Without information on what your students need and what interests them, your goal of helping them achieve entry-level competence in their chosen occupations will be difficult, if not impossible.
2. Since there are no standardized test scores available, you could arrange for a meeting with the guidance staff. In your discussion with one of the counselors, you could indicate which tests you would like to administer to the students. If you were not familiar with administering standardized tests, you could ask the counselor about the tests that should be administered, and ask him/her to administer them. You would check to make certain the tests are available and set a convenient time for the testing.

   Information concerning your students' past employment experiences may be available in the vocational department or from the students themselves. This information would be vital in helping you understand the students' attitudes toward work and the type of work with which they have had the most experience.
3. In order to clarify, verify, or update information about students' needs and interests, informal meetings could be held with the students' parents and also with the students. Interviews could be arranged with students' former teachers. Questions may be asked of the students' peers. In using informal techniques, you may ask questions concerning the students' hobbies; how they spend their free time; their relationships with employers, former employers, peers, teachers, and parents; the home environment; and how they earn their spending money. Checklists and questionnaires also could be constructed and administered to the students in situations where more formal data-gathering methods seem necessary. For example, if you were planning a unit on job safety, and you wanted to get an overall picture of class attitudes toward safety, a well-constructed checklist or questionnaire might serve the purpose better than time-consuming and less structured informal discussions.
4. Basically, the procedures used and the types of information collected with post-secondary (older, more mature) students would be similar to those at the secondary level. However, the emphasis you placed on certain procedures and certain kinds of information would probably differ. You would not, for example, expect to interview the parents of an older, married student with a full-time job. You might well, however, want to discuss this student's needs or interests with a career counselor in the school's guidance service. In examining the cumulative records of your students, you would probably not look for anecdotal records, but you would expect to find more information on present and previous work experience, and you might find transcripts from other training institutions. In other words, the procedures you used and the information you collected would reflect the fact that the needs and interests of post-secondary students are often quite different from those of secondary students.

SAMPLE 42

Compare your completed written critique of the Case Study with the Model Critique given below. Your response need not exactly duplicate the model response; however, you should have covered the same major points.

MODEL CRITIQUE

The best laid plans of mice and Mr. Lefkowitz oft go astray. Mr. Lefkowitz certainly was off to an excellent start in the first part of the course. He took one machine at a time, explained it, demonstrated its use, allowed practice, and required skill to be demonstrated according to an assignment sheet.

Using a multitude of resources and instruction sheets, he individualized instruction and created a smoothly running laboratory situation. In addition, these activities should have prepared them to begin to develop their own work plans. Since everything went beautifully, Mr. Lefkowitz was justified in assuming they were ready to do so.

The failure of the majority of the students to produce acceptable work plans was caused by a number of weaknesses in Mr. Lefkowitz's plans for the second part of the course. First, he moved too quickly from simple operations directed entirely by the teacher to overall work plans developed on a completely independent basis.

He should have started by giving them teacher-prepared work plans. Then, he might have asked them to develop work plans cooperatively with him. Finally, he could have had them develop independent plans. This sequence would have prepared students better for the task he was requiring of them.

Providing students with verbal examples of jobs from his own experience might have been a good idea if those jobs represented jobs currently required in the real world of work. However, other examples should have been provided also. He should have had visual displays showing completed plans and completed jobs that students could have examined.

Furthermore, although he used resources well in the first part of the course, he dropped their use completely during the second part. He could have provided students with a variety of resources which could have helped them in selecting an appropriate job, determining the operations involved, and developing adequate plans. Information sheets explaining how to develop work plans could have also been prepared and distributed. If necessary, drawing tools and other materials needed for developing the plans should have been made available.

Rather than requiring a totally individualized effort, Mr. Lefkowitz could have provided some time for group discussion, brainstorming, or interaction between small groups of students. These activities could have eliminated problems, increased progress, and promoted creativity.

- In those cases in which some or all of the teacher's answers should match the model response exactly (e.g., when the self-check includes matching or multiple-choice type items), the feedback directions should clearly explain what is required, as shown in Sample 43.

SAMPLE 43

Compare your completed written critique of the Case Script with the Model Critique given below. Your circled responses should exactly duplicate the model responses. Your written comments need not exactly duplicate the model comments; however, you should have covered the same major points.

MOD CRITIQUE

1. YES. law of supply and demand is easy to demo ate by conducting a real sale.
2. YES. Since the demonstration involved the whole class as a part of the sale, all students could see what was going on.
3. YES. The teacher used the uncomfortable temperature and the students' thirst—conditions they could easily relate to—in order to demonstrate the principle. He did not tie the principle into past and future learning, nor indicate why they were studying the principle. However, this could be a function of the total lesson plan, not the smaller demonstration plan.
4. YES. Mr. Martino helped students arrive at their own definition of supply, demand, commodity, and equilibrium. He also had instruction sheets containing those definitions prepared for the class.
5. YES. The materials in this example were nothing more than a few cans of lemonade, a chalkboard, a flip chart, and some instruction sheets. The graphs were prepared and hidden on the flip chart ready to use.
6. YES. The demonstration was conducted in an orderly, coherent way so that students were gradually led to discover the law of supply and demand.
7. YES. Since student participation was essential in this demonstration, Mr. Martino was constantly observing students—their comments, questions, and other reactions. The nature of his direct questions to various students indicates that he was very aware of how well students were following the demonstration.
8. YES. Mr. Martino summarized key points throughout the demonstration. At the conclusion, when he said, "Now let's go over what we've learned once more," he involved students in summarizing the demonstration.
9. YES. Discussion continued throughout the demonstration, so that Mr. Martino got continuous feedback on whether or not the class understood the principle. Their summary comments provided further feedback as to their understanding of what had been demonstrated.
10. YES. Mr. Martino used graphs drawn on a flip chart as an instructional aid to illustrate the point of equilibrium.
11. YES and NO. Mr. Martino dismissed the class after a discussion revealed that they understood the law of supply and demand in terms of the lemonade demonstration. However, evidence of whether a principle has been understood comes from knowing whether a student can apply it in a new learning situation. Mr. Martino could have offered another example and let students analyze it in terms of the principle.

    However, as they were leaving, he asked them to "think of other situations we can apply the law of supply and demand to." Perhaps in subsequent classes, he will ask the students to analyze one of these situations in relation to the principle.

- Feedback for practice activities involving the development of plans, reports, analyses, or some other written product should be in the form of model responses if there is really only one way to respond or work with the data given.

- If there is more than one way the teacher can respond, a checklist of items he/she should have considered, or criteria the product should meet, should be provided.

- When the learning activities involve performance of a teaching skill, feedback should be provided through a checklist to be completed by the peers or resource person for whom the teacher has demonstrated the skill (see Sample 47).

- As shown in Samples 44-46, feedback directions for checklists (or any other type of feedback device) should be written to the teacher, specifying the checklist to be used, who is to use it, and how the teacher should proceed.

SAMPLE 44

After you have developed your preliminary lesson plan, arrange to have your resource person review and evaluate your plan. Give him/her the Checklist for Preliminary Lesson Plan, p. 23, to use in evaluating your work.

SAMPLE 45

After you have constructed your completion test items, use the Checklist for Completion Test Items, p. 29, to evaluate your work.

SAMPLE 46

Multiple copies of the Lesson Presentation Checklist are provided in this learning experience. Give a copy to each peer, or to your resource person, before making your presentation in order to ensure that each knows what to look for in your lesson. However, indicate that during the lesson, all attention is to be directed toward you, and that the checklists are to be completed after the lesson is finished.

If you videotaped your lesson, you may want to self-evaluate using a copy of the Lesson Presentation Checklist.

- The checklist itself should include all the essential criteria the evaluator should be looking for in the product or performance. All items should relate directly to the objective the teacher is to achieve.

- The criteria should be stated in observable and/or performance terms. Avoid vague, fuzzy items, and items which call for a simple "yes" or "no" answer (unless you are, in fact, checking for the presence or absence of something).

- Keep the checklist to a reasonable, manageable length. Between 10 and 35 items is probably ideal, depending on the scope and complexity of the objective to be achieved or the performance being demonstrated.

- If you are using a stem, use one such as "The teacher:" or "During the introduction, the teacher:" or "In demonstrating a concept or principle, the teacher:" to focus the attention of the evaluator on the performance (see Sample 47).

- The checklist directions (as opposed to the feedback directions) should be written to the evaluator, indicating the rating scale (level of performance) to be used, and how to use it (see Sample 47).

- As shown in Sample 47, when peers or the teacher are to do the rating, use a modified (e.g., NO, PARTIAL, FULL) rating scale. When the resource person is to evaluate, use a scale which allows for finer discrimination (e.g., NONE, POOR, FAIR, GOOD, EXCELLENT) to allow the resource person to make the more sophisticated judgments of which he/she is capable (see Sample 54).

SAMPLE 47

CONCEPT/PRINCIPLE DEMONSTRATION CHECKLIST

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following performance components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

LEVEL OF PERFORMANCE

In demonstrating the concept or principle, the teacher:	N/A	NO	PARTIAL	FULL
1. selected an example of the concept which could be easily demonstrated	☐	☐	☐	☐
2. set up the demonstration where it could be easily viewed by each student	☐	☐	☐	☐
3. related the new concept to students' previous experiences or instruction	☐	☐	☐	☐
4. defined terms or gave background information when necessary	☐	☐	☐	☐
5. had all materials and equipment ready for use	☐	☐	☐	☐
6. performed the steps of the demonstration in a logical order	☐	☐	☐	☐
7. observed students to see that they were following the demonstration	☐	☐	☐	☐
8. summarized key points during the demonstration or at the conclusion of the demonstration	☐	☐	☐	☐
9. determined students' comprehension of the concept by some form of feedback	☐	☐	☐	☐
10. used visual aids to illustrate any steps which were difficult to observe	☐	☐	☐	☐
11. had students analyze a new situation in relation to the concept	☐	☐	☐	☐

- Every feedback device should include a *level of performance* stating the standard the teacher should have reached in meeting the objective of the learning experience, and indicating what he/she should do if this standard is not reached.

- If the teacher is evaluating his/her own work by comparing his/her responses with model responses, the level of performance should be directed to the teacher (see Samples 48 and 49).

SAMPLE 48

LEVEL OF PERFORMANCE: Your completed Self-Check should have covered the same **major** points as the model responses. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Determining the Needs and Interests of Students, pp. 6–12 or check with your resource person if necessary.

SAMPLE 49

LEVEL OF PERFORMANCE: Your circled responses should have exactly duplicated the model responses; your written comments should have covered the same **major** points as the model comments. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Demonstrating Concepts and Principles, pp. 6–12, or check with your resource person if necessary.

- If the resource person, peers, or teacher are completing a checklist, the level of performance should be directed to all parties involved in the activity (see Sample 50).

SAMPLE 50

LEVEL OF PERFORMANCE: All items must receive FULL, or N/A responses. If any item receives a NO, or PARTIAL response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

Final Experience

Every PBTE module should conclude with a *final learning experience* in which the teacher is required to demonstrate the competency in an actual school situation. This is the culminating experience in the module; all learning activities up to this point should have been designed to prepare the teacher for his/her demonstration of competency. At the same time, the final experience should be so designed that a teacher with prior experience in performing the competency may perform the activities and be evaluated without taking the other learning experiences. (See Samples 51-53.)

The final experience has three sections:

- Statement of the *terminal objective*
- Brief description of the activities to be performed
- Feedback in the form of a *Teacher Performance Assessment Form* to be completed by the resource person

SAMPLE 51

Learning Experience IV

FINAL EXPERIENCE

While working in an **actual school situation,*** direct field trips.

As you plan your lessons, decide when an individual and a group field trip could be used effectively to aid in meeting the lesson objectives. Based on those decisions, direct an individual and a group field trip. This will include—

- involving students in planning field trips to achieve identified student performance objectives
- making or helping students to make all necessary arrangements
- orienting students to the trips
- involving students in evaluating and summarizing what was achieved by the trips

NOTE: Due to the nature of this experience, you will need to have access to an actual school situation over an extended period of time (e.g., four to six weeks).

As you complete each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes.

Arrange in advance to have your resource person review your documentation and observe at least one instance in which you work with students (e.g., when you orient students to the field trip).

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 51–53.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in directing field trips.

*For a definition of actual school situation, see the inside back cover

Following are guidelines for developing the components of the final experience.

Terminal Objective

- The terminal objective should describe in performance terms the overall competency the teacher is to demonstrate in the actual school situation.

- If the module is designed to cover more than one competency, you will need to examine those competencies and the general criteria outlined for them, decide what essential performance is involved, and state this in the terminal objective. For example, the CVE module *Direct Field Trips* is based on two competencies, "conduct field trips," and "direct students in gathering information from sources in the community." Both these competencies involve the teacher in assisting either groups of students, or individual students, in visiting sources in the community. Thus, the performance was briefly and simply stated as "direct field trips," which conveys the essential information in action form. (See guidelines for developing the title page, p. 5, for further suggestions.)

- Include the condition under which the teacher will be performing the final experience. For example, if the activity to be performed is something that takes place inside the classroom, such as presenting a lesson, the condition should simply read, "In an actual school situation...," (see Samples 52 and 53). In Sample 51, the condition is stated as "While working in an actual school situation...." This reflects the fact that the teacher will be performing a good deal of the experience outside of the school or classroom. If the objective involves a specialized activity such as advising a student vocational organization or coordinating cooperative education, the condition should reflect this (e.g., "While working as a teacher coordinator in an actual school situation...").

Activities

- As Samples 51-53 reveal, there is no overview for the final experience, nor are the activities spelled out in detail. (It is assumed that if the teacher is ready for the final experience, he/she should know what is involved in performing the competency.)

- Generally, a single activity, in which you restate or expand on the performance portion of the terminal objective, and then list the key activities included in performing the competency, will be sufficient.

- If (1) activities will require a certain length of time to complete, (2) the teacher needs to document his/her completion of certain activities, or (3) plans or other materials need to be submitted to the resource person, a *note* concerning these special directions should follow the activities.

- Special directions concerning the length of time needed to complete the final experience will ordinarily not be necessary when the objective involves presenting one lesson. On the other hand, objectives involving such activities as conducting a community survey, presenting a series of lessons, determining student grades, organizing the vocational laboratory, etc., obviously require more lengthy or extensive time commitments from the teacher. The teacher needs to be informed of this (see Samples 51 and 52).

- In cases where the teacher is involved in a wide range of activities over time (e.g., supervising the activities of a student vocational organization), or the activity is such that the resource person's presence as observer/evaluator would be distracting (e.g., conferring with a student on a personal problem), special directions concerning how the teacher should document what he/she has done are needed (see Sample 52).

SAMPLE 52

Learning Experience IV

FINAL EXPERIENCE

In an actual school situation,* use conferences to help meet student needs.

As you fulfill your teaching duties, use conferences to help students who are in need of assistance with personal or personal-social problems, and educational and/or vocational planning. This will include—

- identifying a student who needs assistance with a personal or personal-social problem
- identifying a student who needs assistance with educational and/or vocational planning
- preparing for the conferences
- conducting the conferences
- following up on the conferences

NOTE: Due to the nature of this activity, you will need to have access to an actual school situation over an extended period of time (e.g., four to six weeks).

As you conduct each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes. Videotape (with student's approval) the conference involving educational and/or vocational planning; and arrange in advance with your resource person for the kind of evidence you will need to document your actions during the personal or personal-social problem conference.

Arrange to have your resource person review your documentation.

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 37–38.

Based on the criteria specified in this assessment instrument, your resource person will determine whether you are competent in using conferences to help meet student needs.

*For a definition of "actual school situation," see the inside back cover.

- Whenever the final experience involves presenting a lesson, special directions should be included suggesting that the teacher submit his/her plans to the resource person for approval prior to the actual presentation and assessment (see Sample 53).

SAMPLE 53

Learning Experience III

FINAL EXPERIENCE

In an **actual school situation,*** demonstrate a manipulative skill.

As you plan your lessons, decide when demonstrating a manipulative skill could be used effectively to aid you in meeting the lesson objectives. Based on that decision, demonstrate a manipulative skill. This will include—

- selecting, modifying, or developing a lesson plan which includes detailed plans for presenting such a demonstration
- locating and/or developing all necessary equipment and materials
- preparing the physical setting for the demonstration
- presenting the lesson to the class

NOTE: Your resource person may want you to submit your written lesson plan to him/her for evaluation before you present your lesson. It may be helpful for your resource person to use the TPAF from Module B–4, *Develop a Lesson Plan*, to guide his/her evaluation.

Arrange in advance to have your resource person observe your lesson presentation.

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 35–36.

Based upon the criteria specified in this assessment instrument your resource person will determine whether you are competent in demonstrating a manipulative skill.

*For a definition of "actual school situation," see the inside back cover

Feedback/Teacher Performance Assessment Form

- Feedback for the final experience is always in the form of a checklist, the *Teacher Performance Assessment Form* (TPAF), completed by the resource person (see Sample 54).

- Your feedback directions should indicate this to the teacher, specifying the page numbers on which the assessment form is located.

- As illustrated in Samples 51-53, the feedback directions should begin with a statement directing the teacher to arrange with his/her resource person for the necessary observation(s) and/or review of documentation. In some cases (e.g., a lesson presentation) only an observation will be necessary. In other cases, more elaborate arrangements for review of written documentation, visits to facilities, listening to audiotapes, etc., may be necessary if the resource person is to have an adequate basis on which to assess the teacher's competency.

- The Teacher Performance Assessment Form should follow the final experience page immediately.

SAMPLE 54

TEACHER PERFORMANCE ASSESSMENT FORM

Introduce a Lesson (C–10)

Name _____

Date _____

Resource Person _____

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
During the introduction, the teacher:						
1. stated specifically what the objective(s) of the lesson was in terms of student behavior	☐	☐	☐	☐	☐	☐
2. explained why the objective(s) was important in terms of student needs	☐	☐	☐	☐	☐	☐
3. identified what the students would need to do in order to accomplish the objective(s)	☐	☐	☐	☐	☐	☐
4. related the lesson to past classroom activities or to students' prior knowledge or experience	☐	☐	☐	☐	☐	☐
5. explained how the students would know when they had achieved the objective(s)	☐	☐	☐	☐	☐	☐
6. used motivational and/or attention getting devices	☐	☐	☐	☐	☐	☐
7. provided opportunity for student response and participation	☐	☐	☐	☐	☐	☐
8. reacted favorably to student questions, answers, and comments	☐	☐	☐	☐	☐	☐
9. used instructional aids	☐	☐	☐	☐	☐	☐
10. was enthusiastic	☐	☐	☐	☐	☐	☐

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

- The TPAF should include all the essential criteria the resource person should be looking for in the teacher's performance.

  To derive these criteria, you will need to review (1) the general criteria developed earlier for the competency(ies) the module is designed to cover, (2) the key steps and procedures involved in performing the competency which you have presented to the teacher in your information sheets and other background information, and (3) the criteria you have listed in any previous checklists contained within the module.

- The TPAF should not list any criteria not previously presented to the teacher. Similarly, the teacher should have had a chance to practice or in some way apply any performance called for in the TPAF.

- As indicated in the guidelines for writing checklists, p. 53, (1) the criteria should be stated in observable performance terms, (2) the length of the checklist should be reasonable (between 10 and 35 items), and (3) the stem used, if any, should focus the attention of the evaluator on the performance.

- As shown in Sample 54, the items should be stated in the past tense (e.g., "used instructional aids," "explained why...").

- The rating scale used should allow the resource person to make clear judgments about the level of performance of the teacher in performing the competency (see p. 53).

- The *level of performance* should clearly state how well the teacher must perform, and what to do if this level is not reached.

About Using the Center's PBTE Modules

As indicated in the discussion of the About This Module page, p. 8, any module you write should provide the teacher with instructions concerning how to use a module. In addition to information unique to each module, the teacher should be given general directions common to all modules he/she may be taking. Once you have determined the form and content of these directions, they become standard and are simply copied for each module you write.

The Center's PBTE modules include the following information in these standard directions, which appear on the inside back cover of each module (see Sample 55).

- an *Organization* section, briefly describing how the modules are structured
- a *Procedures* section, which lists the options the teacher has for completing (or not completing) a module
- a *Terminology* section, which defines the standard terms used in all modules
- a section defining the *Levels of Performance for Final Assessment*

SAMPLE 55

ABOUT USING THE CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should **enable** you to achieve the **terminal** objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual school situation when you are an intern, a student teacher, or an inservice teacher.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills which you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the Introduction, (2) the Objectives listed on p. 4, (3) the Overviews preceding each learning experience, and (4) the Final Experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- that you do not have the competencies indicated, and should complete the entire module
- that you are competent in one or more of the enabling objectives leading to the final learning experience, and thus can omit that (those) learning experience(s)
- that you are already competent in this area, and ready to complete the final learning experience in order to "test out"
- that the module is inappropriate to your needs at this time

When you are ready to take the final learning experience and have access to an actual school situation, make the necessary arrangements with your resource person. If you do not complete the final experience successfully, meet with your resource person and arrange (1) to repeat the experience, or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped; (2) repeating activities; (3) reading supplementary resources or completing additional activities suggested by the resource person; (4) designing your own learning experience; or (5) completing some other activity suggested by you or your resource person.

Terminology

Actual School Situation . . . refers to a situation in which you are actually working with, and responsible for, secondary or post-secondary vocational students in a real school. An intern, a student teacher, or an inservice teacher would be functioning in an actual school situation. If you do not have access to an actual school situation when you are taking the module, you can complete the module up to the final learning experience. You would then do the final learning experience later; i.e., when you have access to an actual school situation.

Alternate Activity or Feedback . . . refers to an item or feedback device which may **substitute** for required items which, due to special circumstances, you are unable to complete.

Occupational Specialty . . . refers to a specific area of preparation within a vocational service area (e.g., the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity).

Optional Activity or Feedback . . . refers to an item which is not required, but which is designed to **supplement** and enrich the required items in a learning experience.

Resource Person . . . refers to the person in charge of your educational program; the professor, instructor, administrator, supervisor, or cooperating/supervising/classroom teacher who is guiding you in taking this module.

Student . . . refers to the person who is enrolled and receiving instruction in a secondary or post-secondary educational institution.

Vocational Service Area . . . refers to a major vocational field: agricultural education, business and office education, distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education.

You or the Teacher . . . refers to the person who is taking the module.

Levels of Performance for Final Assessment

N/A . . . The criterion was not met because it was **not applicable** to the situation.
None . . . **No attempt** was made to meet the criterion, although it was relevent.
Poor . . . The teacher is unable to perform this skill or has only **very limited ability** to perform it.
Fair . . . The teacher is unable to perform this skill in an acceptable manner, but has **some ability** to perform it.
Good . . . The teacher is able to perform this skill in an **effective** manner.
Excellent . . . The teacher is able to perform this skill in a **very effective** manner.

DEVELOPMENT PROCEDURES

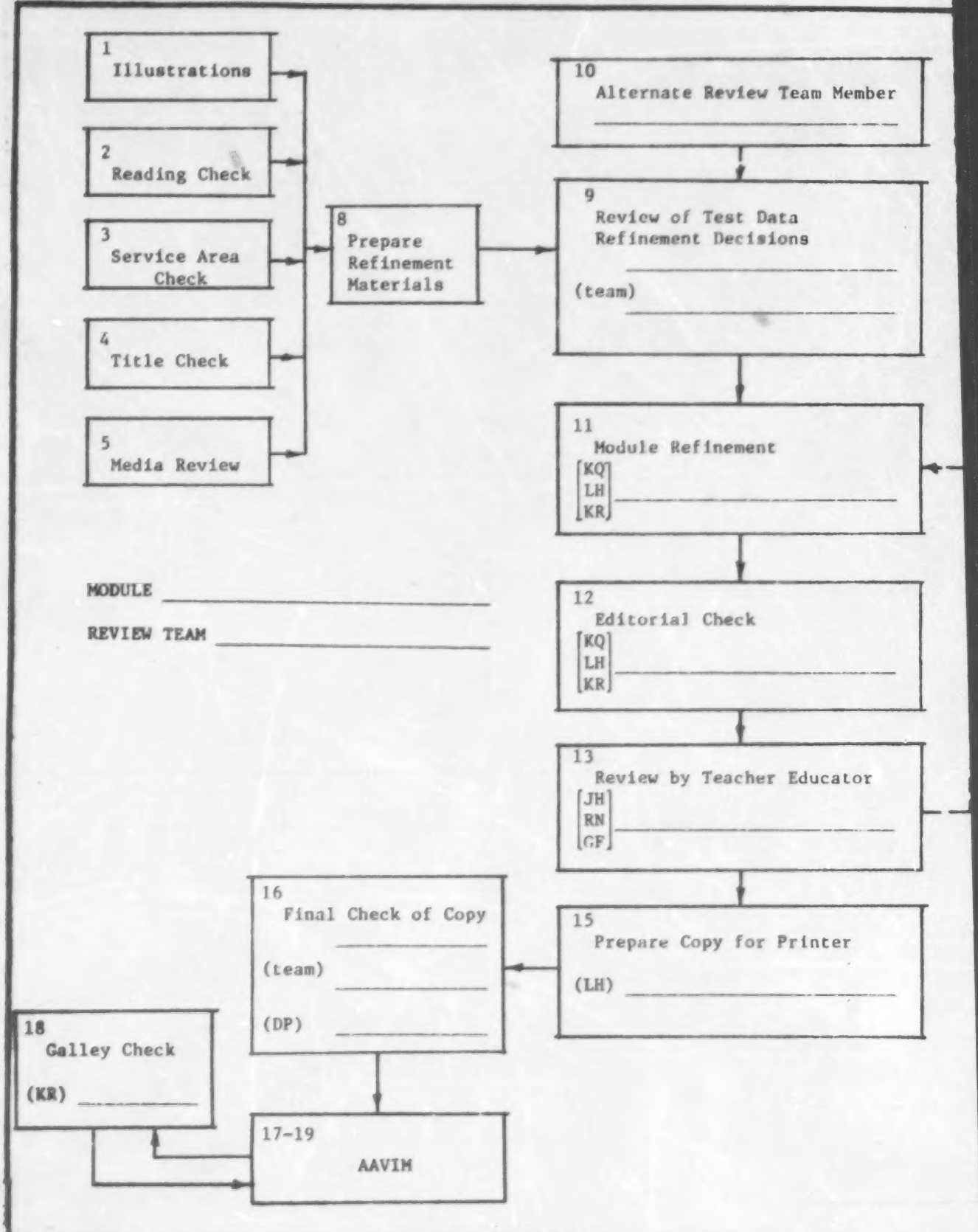
To facilitate the module-writing process, and to ensure the development of consistently high quality products, the development procedures to be used need to be worked out in advance, and carefully followed by everyone involved in producing the modules.

One item of concern is style, the form you will follow for headings, footnotes, capitalization, samples, lists, etc. One possibility is to follow a set of standard guidelines such as those advocated in The University of Chicago Press Manual of Style. Another option is to develop an in-house "style handbook" covering key rules and items about which there are frequent questions. Whatever is decided, the important thing is that module writers, reviewers, editors, and typists have a copy of these rules, and follow them to ensure module clarity and consistency.

Another concern is the process to be followed in developing the module(s). This includes the procedures for writing, reviewing, revising, editing, typing, and printing the module(s). Once the process has been worked out, it may be helpful to develop a graphic representation (flow chart) of the process on a single sheet of paper. This sheet can then accompany the module as it goes through each step in the process, with the individuals involved "signing off" as they complete their responsibilities. Sample 56 is an example of one such flow chart used by the CVE staff in developing the PBTE modules.

Finally, module quality is a key concern. One way to ensure module quality is to develop a checklist covering the criteria

SAMPLE 56


1
Illustrations
2
Reading Check
3
Service Area Check
4
Title Check
5
Media Review
8
Prepare Refinement Materials
10
Alternate Review Team Member
9
Review of Test Data Refinement Decisions
(team)
11
Module Refinement
KQ
LH
KR
MODULE
REVIEW TEAM
12
Editorial Check
KQ
LH
KR
13
Review by Teacher Educator
JH
RN
GF
16
Final Check of Copy
(team)
(DP)
15
Prepare Copy for Printer
(LH)
18
Galley Check
(KR)
17-19
AAVIM

each module component, and the module as a whole, should meet. Module writers and reviewers need not actually "check off" the items on the checklist, but familiarity with these criteria can greatly assist them in developing modules that meet quality standards. Sample 57 is an example of one such checklist used by CVE staff in developing the PBTE modules. Sample 58 is an example of a more general checklist which can be used to review overall module quality, relevance, and usability.

SAMPLE 57

MODULE QUALITY REVIEW CHECKLIST

MODULE TITLE: _____

MODULE NO.: _____ REVIEWED BY: _____

Language

1.	New terminology is defined in the introduction or information sheets.	YES	NO
2.	The terminology is consistent throughout.	YES	NO
3.	The internal directions are simply and clearly stated, and complete.	YES	NO
4.	The performance objectives are stated in observable terms.	YES	NO
5.	The procedures describe the options available to the learner in completing the module.	YES	NO
6.	The activities clarify what the performance is, how to do it, and why it is necessary.	YES	NO
7.	The language is lively and interesting; not mechanical or pedantic.	YES	NO
8.	The language is geared to the level of an average reader in the target audience.	YES	NO

Learning Experiences

1.	Learning experiences are sequenced logically.	YES	NO
2.	Learning experiences do not overlap.	YES	NO
3.	Learning experiences lead directly to competency in the performance objectives.	YES	NO
4.	All required readings contribute directly to attaining the objectives.	YES	NO
5.	All required activities contribute directly to attaining the objectives.	YES	NO
6.	When an activity may be difficult to implement, alternate ways of completing the activity are provided.	YES	NO
7.	Optional learning activities are provided to give depth, variety, and flexibility to the learning experiences.	YES	NO
8.	A range of activities is provided to accommodate students of different abilities, needs, and interests.	YES	NO
9.	A range of activities is provided to allow for both individual and group work.	YES	NO
10.	Role playing activities include role descriptions and situations to guide anyone playing a role outside his/her own frame of reference.	YES	NO
11.	The learning activities are varied and interesting, with a minimum of repetition from one learning experience to another.	YES	NO
12.	Feedback is provided at the end of every learning experience.	YES	NO

Information Sheets (Criteria in the "Language" section apply here.)

1.	The module is self-contained, if at all possible.	YES	NO
2.	Information sheets contain up-to-date and accurate information.	YES	NO
3.	Information sheets are concrete and tangible; not vague generalities or lists of criteria; they tell "how to do it."	YES	NO
4.	Information sheets are relevant to vocational education, with examples drawn from various service areas of vocational education.	YES	NO
5.	Selected pages of outside resources are used as enrichment and/or reinforcement activities.	YES	NO
6.	Outside resources are not more than 10 years old (unless they are of exceptional value).	YES	NO
7.	Readings (information sheets and outside references) are complete in that they provide the learner with all information needed to complete the module.	YES	NO
8.	Outside references are standard enough that they should be readily available to any module user.	YES	NO

Self-Checks, Model Answers, Checklists

1.	Self-checks are thought provoking and require application of information; not rote responses.	YES	NO
2.	Self-checks comprehensively reflect the information provided in the learning experience.	YES	NO

3. Self-checks are not obvious; they require an understanding of the knowledge important to achieving the competency. YES NO
4. Model answers are provided to reinforce learning and clarify concepts. YES NO
5. Checklists and assessment forms are stated in observable, performance terms. YES NO
6. Checklists include all the criteria necessary for successful performance. YES NO
7. Checklists actually assess the learner's progress toward the objective. YES NO
8. Checklists are of reasonable length and complexity, with no more than 25-30 items. YES NO
9. Alternatives to peer evaluation are provided for those learners who cannot arrange to work with peers. YES NO
10. Each feedback device includes a stated level of performance. YES NO
11. Evaluations provide for recycling if the level of performance is not met. YES NO

Media

1. The media is applicable to all vocational service areas. YES NO
2. The media illustrates, clarifies, reinforces, or extends the concepts introduced in the module; it doesn't simply repeat them. YES NO
3. The media is realistic, i.e., the teacher, students, and real school setting are believable. YES NO
4. The length of the media is reasonable (10 to 20 minutes). YES NO
5. The media is interesting visually/aurally. YES NO
6. The media is clear visually/aurally. YES NO
7. If the media includes an exemplary instructor, the instructor:
   a. relates well with students. YES NO
   b. uses student feedback. YES NO
   c. uses media or teaching aids where appropriate. YES NO
   d. presents information geared to the needs of the students. YES NO
   e. teaches on the basis of up-to-date learning theory. YES NO
8. The media is free from racial and sex bias. YES NO
9. The media is lively and action-oriented. YES NO
10. The information is presented in a logical sequence. YES NO

Overall

1. The module delivers on the objectives. YES NO
2. The module meets format specifications. YES NO
3. The module is internally consistent (objectives, activities, feedback devices, etc. do not contradict each other, directly or indirectly) YES NO
4. No learning experience other than the final learning experience requires performance in an actual school situation. YES NO
5. Opportunity is provided for practicing any performance which must be executed in the real world. YES NO
6. The final learning experience requires performance in an actual school situation. YES NO
7. The learning experiences are realistic; i.e., they do not require an unreasonable amount of prior knowledge or of time on the part of the learner. YES NO
8. Implementation of the module is feasible and practical; i.e., it does not require an unreasonable amount of the resource person's time. YES NO
9. Learning activities, information sheets, case studies, resources, etc. provide equitable representation of the various service areas in vocational education. YES NO
10. An introductory statement is provided which motivates the student by explaining why the competency is needed, not simply what the competency consists of. YES NO
11. An introductory statement is provided which places the module in a frame of reference with other modules in the category, and with the broad theory of vocational education. YES NO
12. All necessary or desirable prerequisite competencies are listed. YES NO

SAMPLE 58

PBTE MATERIALS CHECKLIST

Directions: Place an X in the NO, PARTIAL, or FULL column to indicate the extent to which the instructional package meets each of the specified criteria. If, because of the competency involved or for other special reasons, a product (performance) criteria is not applicable, place an X in the N/A column.

	LEVEL OF PERFORMANCE			
	N/A	NO	PARTIAL	FULL
1. The instructional package is based on one or more competencies identified as important to vocational teachers.....				
2. The basis of competency identification (the research method or other procedures used in identifying the competencies covered) is made clear.....				
3. The package was pilot or field tested before being disseminated for use.....				
4. The target group for the package is preservice and/or inservice vocational teachers.....				
5. The content is relevant to the needs of vocational teachers.....				
6. The information is up to date.....				
7. The package contains the following basic components:				
a. clear directions for using the package.....				
b. a rationale or introduction explaining the importance of the skill being covered.....				
c. a listing of performance objectives.				
d. clear, complete explanations of the activities to be completed in order to reach each objective.....				
e. information sheets or reference to a minimal number of outside references containing the needed information.....				

	LEVEL OF PERFORMANCE			
	N/A	NO	PARTIAL	FULL
f. devices for immediate feedback.....				
g. a criterion-referenced post-assessment form designed to measure actual performance.....				
8. The package also contains the following components (optional):				
a. a listing of prerequisites.....				
b. a listing of terminology, and any resources and materials required....				
c. a pre-assessment device.....				
9. The package either includes all necessary materials or clearly specifies what is needed.....				
10. The package contains a variety of realistic activities.....				
11. Opportunities for recycling activities are included.....				
12. The package provides opportunities for trainees to interact with peers, resource person, and others.....				
13. Supplementary enrichment activities are provided to meet the needs of interested learners.....				
14. The package format and activities allow for flexibility and thus can meet the needs of persons with different learning styles.....				
15. The learning activities are sequenced in a logical order.....				
16. The package is well-produced (e.g., good grammar, correct spelling, clear layout, clean copy, neat corrections, etc.).....				
17. An implementation and/or a user's guide is available as supportive materials....				